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ABSTRACT

The ecosystem model is a design process utilizing an ecological approach. The manual presents processes developed and used during on-site campus applications of the model. It illustrates how work on a micro-level ecosystem project can be divided into stages, with instructions for accompanying discussions and process procedures for each. The manual contains extensive appendixes relating to campus environmental design which include team-building techniques, a design for a workshop and a listing of assessment instruments with annotations. (Author/HJ)

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TRAINING MANUAL for An Ecosystem Model

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by LuAnne Aulepp and Ursula Delworth

Western Interstate Commission for Higher Education

CG 010 879

TRAINING MANUAL

FOR

AN ECOSYSTEM MODEL:

Assessing and Designing Campus Environments

by

LuAnne Aulepp and Ursula Delworth

Western Interstate Commission for Higher Education
An Equal Opportunity Employer
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INTRODUCTION

The Training Manual for An Ecosystem Model is published by the Western Inter-State Commission for Higher Education (WICHE) program Improving Mental Health Services on Western Campuses as a result of work done on Grant No. 12419 from the Experimental and Special Training Branch of the National Institute of Mental Health. The manual presents processes developed and used during on-site campus applications of an ecosystem model.

Model Origins

The ecosystem model is a design process utilizing an ecological approach. The essence of an ecological approach is the interaction that occurs between persons and their environment or how an environment affects people, their work, their leisure, and their personal growth. The theory that underlies this model was developed by Dr. Leland Kaiser and was refined by members of the WICHE program task force on which he served. This and other program task forces were convened during the first three years of the grant (1970-1973). Membership of each task force represented all segments of the campus community--students, faculty, student services, administration, and governing boards. Their charge was to develop ideas for the delivery of student services that would foster well-being on campus. In using the ecosystem approach to campus, the model becomes a tool for the creation of campus environments that can foster both educational and personal growth among students.

The current grant has concentrated on the development and testing of processes for implementing the ecosystem model and two other models, one for student service programs development and the other for training paraprofessionals and allied professionals, recommended by the task forces. Implementation of the ecosystem model is far behind its conceptualization. The technology for its use is still in a developmental stage. This training manual offers only the beginning rudiments of a technology that is certain to grow and be refined as succeeding campuses use the model. Each campus that hosted an ecosystem model application has provided new dimensions to the processes that have been incorporated into this manual. Therefore, each campus that uses this manual is advised to regard it as a guide, not as strict rules, and is urged to expand upon the suggested processes.

Model Overview

Traditionally, colleges and universities have responded to students who were not adjusting to their campus environments by easing them out or referring them to a service that would aid them in making an adjustment. Relatively little attention has been given to institutional adjustments in terms of programs, policies, services, or physical spaces. Even when new services have been offered or existing ones expanded, this is rarely done on the basis of systematic data concerning student/environment fit. In short, students were adjusted, but rarely were their environments. There is now growing interest within postsecondary education in the *ecosystem approach* that identifies adjustments institutions can make to facilitate student retention and growth. Ecosystem theory does not deny that some students should leave college or that some students will need individual academic or personal assistance while in college; what it does assert is an alternate option--the design of environments that ameliorate unnecessary problems and enhance student retention and growth.

The ecosystem model's design philosophy is rooted in eight basic assumptions that:

1. A campus environment consists of all the stimuli that impinge upon the students' sensory modalities, including physical, chemical, biological, and social stimuli.
2. A transactional relationship exists between college students and their campus environment, i.e., the students shape the environment and are shaped to it.
3. For purposes of environmental design, the shaping properties of the campus environment are focused on; however, the students are still viewed as active, choice-making agents who may resist, transform, or nullify environmental influences.
4. Every student possesses the capacity for a wide spectrum of possible behaviors. A given campus environment may facilitate or inhibit any one or more of these behaviors. The campus should be intentionally designed to offer opportunities, incentives, and reinforcements for growth and development.
5. Students will attempt to cope with any educational environment in which they are placed. If the environment is not compatible with the students, the students may react negatively or fail to develop desirable qualities.
6. Because of the wide range of individual differences among students, fitting the campus environment to the students requires the creation of a variety of campus subenvironments. There must be an attempt to design for the wide range of individual characteristics found among students.

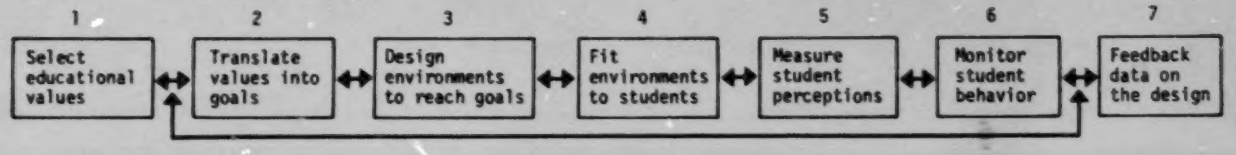
7. Every campus has a design, even if the administration, faculty, and students have not planned it or are not consciously aware of it. A design technology for campus environments, therefore, is useful both for the analysis of existing campus environments and the design of new ones.
8. Successful campus design is dependent upon participation of all campus members including students, faculty, staff, administration, and trustees or regents.

The ecosystem model's design process is utilized to identify environmental-shaping properties in order to eliminate dysfunctional features and to incorporate features that facilitate student academic and personal growth. For example, a physical space might be altered, a policy changed, or a new program or service initiated. It can be applied at a *macro-level* to design environments for the entire campus community; it can be applied at a *micro-level* to design subenvironments for groups within the campus community; and it can be applied to route students to an environment, service, or program demonstrated to be meeting student needs. This would be considered an individual design project.

The design process itself encompasses seven steps that should be viewed as interacting components (see Figure 1). Design work may begin with any of the steps but unless an institution is just being set up or wants to initiate an entirely new environment, it will find entry into the model is most natural at step five. The seven interdependent steps are:

1. Designers, in conjunction with community members, select educational values.
2. Values are then translated into specific goals.
3. Environments are designed that contain mechanism to reach the stated goals.
4. Environments are fitted to students.
5. Student perceptions of the environments are measured.
6. Student behavior resulting from environmental perceptions is monitored.
7. Data on the environmental design's successes and failures, as indicated by student perceptions and behavior, are fed back to the designers in order that they may continue to learn about student/environment fit and design better environments.

Figure 1. Design Process



The processes given in this training manual are for a *micro-level* project, as this type of undertaking provides the greatest benefit without overextending the ecosystem model's technological capabilities at this stage of its development. The point of entry into the model is at step five--measuring student perceptions--because most campus environments are already established with implicit and explicit values and goals. It makes sense to check how students view the translation of these values and goals, that is, how they perceive what is happening to them in the environment, and equally important, why they have these perceptions. It is the ecosystem model's emphasis on why students have certain perceptions about an environment that imparts its design capabilities.

For years researchers have developed instruments that measure people's perceptions, but the resultant data do not reveal why; consequently, there is not sufficient information and design can be blind. Without obtaining environmental referents--the specific causes and/or conditions in the environment that produce student perceptions--designers can eliminate good features with the bad ones, and thus redesign an environment that still fails its intended purpose.

The most common way to get an environmental referent is to interview individuals. This is time consuming and for a large undertaking such as the assessment of most campus environments it is impractical as well, at least when utilized as the only data-gathering method. Therefore, the model uses and advocates an Environmental Referent (ER) questionnaire in conjunction with the more common instrument approaches for assessing perceptions. This questionnaire uses a format that asks students to review their responses on the perceptual instrument and comment as to why they have their good and bad perceptions and what should be retained or changed in the environment as they perceive it. It is this information that subsequently makes it possible to redesign environments that will better fit the people for whom they are intended.

This training manual is for micro-level ecosystem projects. The manual illustrates how work on such a project can be divided into five major stages. Each stage begins with an overview of the tasks to be covered in it. Then, a two-part format--Discussion and Process--is used to further describe each task and present the processes that have been found useful in carrying it out. The manual's lefthand margins contain a continuing outline of each stage, which is designated by the name of each task to be completed and its accompanying discussion and process procedures.

Because one of the basic philosophic assumptions of the ecosystem model is that successful campus design is dependent upon the participation of all campus members including students, faculty, student services, administration, and trustees or regents,

Stage I involves the establishment of an ecosystem planning team that translates this concept into a practical form. Using the ecosystem model's step five as the point of entry, Stage II concentrates on determining which aspects of the environment the planning team wants measured by student perceptions. This lays the foundation for Stage III in which the assessment technique is developed. Stage IV involves administering the assessment technique and conducting an initial analysis on its data. Processes for the subsequent redesign of the environment based on the data analysis are given in Stage V, as are suggested procedures for evaluating the effects of the redesign.

Model Applications

In order to develop this training manual, the ecosystem model was applied on three campuses to test, evaluate, and refine the processes used for its implementation. The time involved for each on-campus application was approximately a year. The model and its goals are best served when the environment's population remains relatively the same from the period of environmental assessment through the period of evaluation on the subsequent environmental designs. To accomplish this, however, adequate lead time is needed for the completion of planning in Stages I, II, and III, so that the environmental assessment can be conducted with sufficient time remaining in the academic year to complete design implementation and design evaluation.

Each host campus was requested to complete Stage I, the establishment of a planning team, before the WICHE program initiated on-campus application of the model. Then, continual consultation with the host campus was maintained through Stage V processes for redesign. Subsequent implementation and evaluation of redesigns were left to the discretion of each individual campus and its planning team. In this manner, each campus owned its own model application.

The experience was rewarding for the WICHE program. With patience and creativity, each planning team provided valuable assistance and information for the preparation of this training manual. It is with deep appreciation that we thank members of the planning teams who applied the ecosystem model at:

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Community College of Denver, Red Rocks Campus, Golden
Eastern Oregon State College, LaGrande

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Stage I

The Planning Team

The ecosystem model requires that a planning team be formed to conduct its processes. There are a number of important reasons for this. Obviously, environments are perceived in different ways by different people. Therefore, a team approach provides a sampling of these perspectives by virtue of its membership. Equally important to ecosystem design is the idea that it constitutes a collaborative effort to improve environmental conditions by those who are in the environment and those responsible for its maintenance. It is also important to note that research designed and implemented by one individual, often someone from outside the environment, usually lacks credibility with the members and decision makers in that environment. Even quite valid data may be ignored and appropriate redesigns never initiated. Thus, a team approach helps to establish a collaborative effort and credibility for the project. Another reason for using a team approach is that few environments exist alone. A team can afford representation from major, interrelating environments. And finally, ecosystem design is a complex procedure requiring a number of tasks. A team approach allows the workload to be distributed among team members.

Because a team approach is essential to ecosystem design, the first task presented in Stage I is obtaining a high-level commitment for the project. Obtaining this commitment can be helpful in the recruitment of team members and is essential to the team's future functioning. The second task presented in Stage I is selecting team members. Once a team has been assembled, its methods of operation become important. The final task presented in Stage I focuses on team operation and presents methods a team might use to conduct its business smoothly and productively.

Project Commitment

Discussion

Using an ecosystem approach to design optimum campus environments is relatively new. More often than not, the ecosystem concepts and how these would be applied to the proposed project must be carefully ex-

plained. Because the model is new and still in a developmental stage, the explanation is not always simple. There are not many examples or results yet. However, any school that undertakes an ecosystem design project may find reward in developing new processes for the model and thus become a leader for others. This has already happened to those colleges that have accepted the stimulating challenge of innovation.

Often, securing commitment for a project is compounded by ideas and notions that the model is designed to manipulate people through environmental means. The model's use of a team approach, however, ensures its intended goal as a tool people can use to better manage and improve their environments by determining which components in an environment are detrimental, which are facilitative, and what new components might be designed that would improve the environment.

Even though explaining an ecosystem project is difficult and elusive, obtaining commitment for the process is vital. The model presumes environmental design will take place. Its assessment procedure is not just another survey or questionnaire that produces data destined for file cabinets or bookshelves. Instead, ecosystem data are intended to produce descriptive information for planning and implementing environmental change. This means those in a position to effect change on campus must sanction the undertaking in order for the model's results to be enacted.

Commitment for the project should be sought from the highest level possible. In some instances, commitment from the school's top-level administrators cannot be fully procured until after a team has been formulated and can bring its collective voice to bear upon these decision makers. It is necessary, however, to have the active commitment of the top administrator of the environment for which the model is to be used. This is important because team members need sanction to include work on the model as part of their regular schedule, and because resources such as secretarial help and money for instruments and computer time will almost certainly need to be obtained from the administrators and the offices under their authority. An administrator's initial commitment in providing time and resources can also lead to more careful consideration of the data and subsequent support for design projects.

As the person who wants to launch an ecosystem design begins to develop interest in and commitment for the project, he/she will recognize important campus constituencies that should ultimately be represented on the team and spot potential candidates for team membership. Likewise, obtaining commitment for the project can facilitate the recruitment process. At one campus where the ecosystem model has been applied, the president and faculty senate agreed to credit membership on the planning team as equivalent to publishing when considering promotion and tenure. On other campuses, support for an ecosystem design was obtained from the chancellor and vice-presidential levels, which lent importance to serving on the planning team and later opened the doors to needed resources.

Process

Important guidelines to use in obtaining interest in and commitment for an ecosystem project include:

1. Become acquainted with some of the ecosystem and environmental assessment literature. A suggested reference source is Designing Campus Environments: A Review of Selected Literature by Leland R. Kaiser and Lynn Sherretz (Boulder, CO: WICHE, 1976). Some key principles to keep in mind about the model discussed in this manual are that:
   - The team approach, which employs a collaborative effort to use the best ideas from different viewpoints, experiences, and disciplines to conduct a study, will yield productive recommendations for planning and implementing.
   - Data from the ecosystem assessment techniques enlightens more common perceptual data sources with concrete and specific information. For example, everyone knows people are dissatisfied with the cafeteria because it is a popular topic of complaint and records show a decline in usage, but no one knows just which factors--such as prices, food, hours, service, and decor--are the greatest source of dissatisfaction. An ecosystem assessment would gather information on just which factors were most bothersome, as well as suggestions for changing them. The cafeteria environment could then undergo an informed redesign.

- The model views environments as any limited part of campus. The magnitude of the environment can vary. It might be a residence hall, student service, or class; or it can be the residence hall system, the student services system, or a college/academic department.
- Whatever the environment's boundaries, the model then views the environment from the standpoint of all the stimuli at work within it. A list of important stimuli would include physical and social conditions in the environment, policies and regulations applied to the environment, characteristics or demographic variables of the people using the environment, and the values and goals transmitted by the environment.
- The model assesses the various types of interactions that occur between these environmental stimuli and people using the environment in order to modify, change, or otherwise improve the environment.

2. Prepare a list of reasons why the proposed environment should be studied.

   Example: It seems advantageous to study the residence hall environment because:

   - At recent meetings, the regents have questioned the educational value of the residence hall system.
   - Toward the end of last semester, records showed a marked increase in the number of students evidencing problems associated with residence hall life.
   - An article in the college paper noted administrative concern over the number of broken residence hall contracts.

3. Prepare a list of reasons why the ecosystem model could best accomplish the project.

   Example: If the ecosystem model were used to study the residence hall environment, it could give, through its use of environmental referents (the details the respondents cite in a brief written description on why they have a certain perception about the environment), specific data and examples concerning:

- Whether students consider residence hall life as pertinent to their education and why. How the residence hall system meets or does not meet students educational/study needs.
- What things happen in the residence hall that cause students particular problems and what things happen that specially help them.
- How policies and regulations might be better conveyed and/or changed to accommodate the needs of both hall residents and administrators.

4. Determine which campus departments, units, or services have most control over and most direct relationship with the environment.
5. Contact appropriate people in these departments, etc., to determine their interest in the proposed project and to get suggestions of others who would be interested.

   Example: Contact authorities to discuss residence hall project and determine interest in the following offices:

   Student Housing Office
   Dean of Students Office
   Subsequent suggestions for contact:
   Counseling Center
   Student Health Service Mental Health Clinic
6. When sufficient interest has been evidenced, revise the previous list concerning why the ecosystem project should be undertaken to include the ideas gathered from appropriate people in other departments who are interested in working on the project.

   Example: The above list would be revised to include:

   Housing Office interest in assessing residence hall facilities and administrative procedures.
   Dean of Students Office interest in assessing programs and student government in the residence halls.
   Counseling Center and Mental Health Clinic interest in programs and environmental design in residence halls.
7. Using all the above information, seek a commitment for the project from the highest possible level.

   Example: Discuss the project, its needs, and advantages to secure the endorsement and/or commitment for its undertaking with the President and the Vice-President for Student Affairs.

8. Make appropriate application or notification to the office or committee that governs institutional research, if such is present and required on campus.
   Example: University Human Subjects Committee notified and approval given.

* * *

Selecting Team Members

Discussion

Assembling a planning team for an ecosystem project takes thought and preparation. There are several important considerations that should govern team composition. First among these is team size. Teams with a membership of twelve or more can easily become unwieldy. It takes longer for the team to pull together and substantive deliberations are more time consuming. If, however, after other factors are given due consideration and it seems necessary to include a fairly large number of people on the team, this can be managed through administrative procedures. A steering committee might be used to facilitate teamwork, or subcommittees can be set up to handle specific tasks between periodic meetings of the team as a whole.

Experience has shown the optimum team size to be eight members. The best goal to aim for is a team membership of between six and ten persons; this allows a very energetic and cohesive group to form while maintaining sufficient diversity, and tasks can be conducted in pairs. When special knowledge or skill is needed, the team can always call upon consultative assistance from colleagues.

Other critical factors to be considered in assembling a planning team are proper representation from those in the environment, those managing the environment, those with political influence over the environment, and those with technical skills required for implementing the model. During the lifetime of an ecosystem project, there will be need for communication between planning team members and the special constituents they represent. Therefore, another consideration in choosing prospective planning team members is their ability to be an articulate channel of communication to and from their constituency.

On campus, proper representation from those in the environment usually means students; however, this obviously depends on the environment to be studied. Therefore, representation could include staff members and/or people from the community. Regarding student representation, at least two students should be selected because they can reinforce each other on a team whose membership appears to comprise the authorities. It is also helpful to have at least two levels represented, i.e., an undergraduate and a graduate student or a freshman and a junior. One might represent students in general and another might be a known student leader.

Representation from the managers of an environment serves several purposes. There are fiscal and physical limits to designing environments. Any assessment must be honest and avoid issues upon which no action could be taken. The managers of an environment best know these limits. Also, they are in the most advantageous position to begin enacting the project's subsequent environmental designs. Thus their knowledge and support is necessary. Managers also deal with the policies and regulations that govern an environment. While there is usually a great deal of latitude in this area for subsequent adjustment, modification, or change, it will be necessary for the team to have informed discussion regarding these issues in order to assess properly the interactions that take place between an environment's regulations and the people it serves. This type of informed discussion can occur only when both the environment's managers and consumers are represented on the team.

Determining representation from among branches of the university that have important interfaces with the environment most often is dependent upon two factors: (1) provision of a major service or support to the environment; and (2) interest in the environment--this usually surfaces while commitment for the project is being sought and secured. Unless these factors are involved it is best to await results of the assessment bevore involving other constituencies in the project. The ecosystem data will indicate which units should be represented to effect environmental designs. For example, an assessment of a residence hall system might indicate need for more recreational activities, and representatives from the athletic department and the student or local community recreation center would be useful in designing this. Or the assessment might

indicate residents studying a particular discipline would like a more learning-centered atmosphere. It would then be helpful to involve representation from the appropriate departmental faculty to design this type of environment.

Whenever possible, it is extremely useful to have, among the planning team's members, a person who represents the political forces that have influence over the environment. Often, high-level administrators can appoint a staff member to serve on the planning team. This translates high-level commitment into representation. As a practical matter, however, this cannot always be achieved. Usually, political influence for and over an environment relies most heavily upon the managers represented on the team, which is reinforced by close liaison and feedback to campus administrators.

Knowledge of assessment instruments and computer technology are highly desirable qualities to be represented on the planning team. Skill in developing instruments is equally valuable. These skills are needed for both the design of assessment procedures and the analysis of assessment data. If they are not represented among team members, then the team will undoubtedly have to seek consultative assistance. In those situations in which a university research or computer center is present, it is strongly recommended that a member of its staff be recruited to serve on the planning team.

In thinking about members for a planning team, it is always helpful to give some consideration as to how service on the team can fit in with regular campus reward systems and/or with the professional goals of team members. Service could count toward promotion and tenure for faculty and could be written into the job description for a student services staff member in lieu of another responsibility. Students could earn credit or be paid from Work-Study or other funds. Some members of the team could use the model as the basis for their own graduate theses. Such individual motivations often facilitate both immediate and long-term commitment to the team's work.

Even though there are many factors to be considered and many qualities desired in choosing a team, it is possible to select a limited number of people who satisfy the essential requirements. Obviously, this is accomplished by locating candidates for team membership who possess more than one needed characteristic, quality, or skill.

Process

Principal factors to apply when selecting and recruiting members for a planning team are to:

1. Try and keep team membership between six and ten people.
2. Look for candidates among those who live in the environment, manage the environment, have an important interface with the environment, possess political influence over the environment, and have knowledge and skill in assessment and computer technologies.
3. Determine how the ecosystem project might serve important goals and needs of the candidates.
4. Explore with the candidates their interests in order to establish benefits that they could expect by participating and what skills and talents they might bring to the team.
5. Select and recruit among the candidates those who fulfill several of the major team needs and considerations and are willing to commit time, interest, and talent to the project.

   Example: Eight-member planning team for residence hall project:

   One member from the Dean of Students Office represents overall student programming, knowledge in research design and assessment techniques, and political influence including the Dean and the Vice-President for Student Affairs.

   Director of Student Housing represents management of residence hall plant facilities, staff, regulations, residence hall program, knowledge of research design and assessment instruments, and political influence including the Vice-President for Student Affairs.

   Three students--one represents graduate student and head resident perspectives, staff management, and knowledge of assessment techniques and instruments. Second student represents upper

division student and resident assistant perspectives. Third student represents lower division student and hall resident perspectives.

Director of the Counseling Center represents major interfacing service to the residence hall system, interest in outreach programs for residence halls, and knowledge in computer technology and assessment techniques.

Director of Mental Health Service represents major interfacing service to the residence hall system and interest in environmental design and residence hall programs.

Staff member from Institutional Research represents knowledge of research technology and access to computer.

* * *

Team Operation

Discussion

While the planning team concept is not new, it is more commonly applied within the confines of one organization, department, or service. Team members usually know each other, have some understanding of each other's jobs, hold many goals in common, and are quite familiar with the intended purpose of their planning effort. This situation seldom applies to ecosystem planning teams. A high ratio of members may know each other only by name, have little or no understanding of each other's work, come onto the team with separate goals for the project, and often feel vague about the intended purpose of their planning effort.

Therefore, it becomes very important during the team's initial meetings to review the project's general purposes, to allow members time to become better acquainted with each other, and to gain an appreciation of each other's role on campus, as well as what each hopes to accomplish by the project. As this occurs, members will find things in common, establish mutual support for each other, and begin to develop ideas in common about the intended purpose of their planning effort.

As the team pulls together, attention should turn to establishing some basic operating procedures. There are many tasks to be accomplished and

setting up some routines will help the team work these through. The team should agree upon a regular meeting time and place. This helps members avoid scheduling conflicts and lends precedence to team meetings. Because each member is representing different constituencies, another important routine will be keeping these groups informed of the team's work. There may also be occasions when the team will want to poll these groups for further information, so keeping the lines of communication operating is important.

Maintaining a sense of direction and progress is always useful when undertaking a complex project such as an ecosystem design. The team should explore methods of processing and evaluating its work and adopt those which best serve its needs. It is also helpful to get the team accustomed to subdividing the workload and completing assignments or undertaking tasks between meetings. In the early phases of the project, team members often will be working on the same tasks. Later, assignment of tasks should be done according to members' abilities and interests.

The time it takes to form team identity and cohesiveness and to set up basic operating procedures will be rewarded with increased team productivity in the long run. Efforts to achieve these goals can move ahead simultaneously during the team's initial meetings. There are many exercises and techniques that may be applied, and each team should find those that are most helpful to it. The ones suggested below have been used successfully by past ecosystem planning teams. Experience indicates it takes three or four meetings to get team relationships and procedures to a point where further development happens more automatically than consciously.

Process/ Project Review

Members come to the planning team with some idea of the project and why they have decided to participate. However, it is helpful to give a brief review of the project as a means to stimulating further discussion so that the team can begin to form ideas in common about the project. Suggestions and guidelines for preparing and conducting this review are given in Technical Appendix A, p. 83.

Process/ Team Building

1. Introducing Members

Often, membership on the ecosystem planning team is the first time people with diverse responsibilities and positions on campus have met or talked with each other. At the minimum, members should be asked to introduce themselves and describe what they do. It is often more appropriate, more fun, and more informative to try an introductory exercise. One such exercise that some planning teams have found useful is given in Technical Appendix B, p. 85.

2. Brainstorming Ideas

As the team begins to work, there are several types of exercises that it can use to facilitate its efforts and to help coalesce its membership. The brainstorming of ideas gets everyone working in a business-like manner, develops better understanding and appreciation of the perspectives represented on the team, and generates much useful information in a short time that produces feelings of productivity among the members. By adhering to the rules of brainstorming, the team can get to the substance of its topic and avoid rambling conversations from which the substance then must be distilled. A recommended brainstorming process is given in Technical Appendix B, p. 85.

The brainstorming process can be readily applied during the initial team-building stage. If the team likes the process, it will have experience in a technique useful at many points throughout the project. Some early applications of brainstorming might be used to elicit team members' knowledge about the environment or to determine the array of interests for studying the environment the team represents. Either application develops corporate information for the team while providing all members with an opportunity to gain a better insight into the concerns and needs of their colleagues.

3. Developing Team Consensus

The ability to develop consensus among its members will also be useful to the team. Using a field force analysis (Technical Appendix B, p. 87) is one technique for establishing consensus and making decisions. Such things as rank-ordering ideas, information, suggestions, and concerns generated by a brainstorming session also help develop consensus and

clarify team priorities. While the occasion to apply these techniques may not arise during the team's first few meetings, they will become valuable team-buildirg aids in the model's later processes. Their use can keep the team together and moving productively.

1. Meetings

Process/ Team Procedures

One of the first procedures to be established for the team is a regular meeting time and place. It is very advisable for the team to begin meeting once every week. As the project gets further along, this can be adjusted to accommodate the team's work flow. Being able to meet in the same place each week is also advisable, for it can save members both confusion and phone calls. The team should:

a. Determine the most mutually agreeable time for everyone to meet weekly and make this the team's regular meeting time.

b. Determine a mutually agreeable length of time for the team to meet. It is suggested that two hours allows enough time for a productive session.

c. Locate a meeting room that can comfortably accommodate team membership and has a large table, preferably round, so that writing and talking are facilitated.

d. Equip the room with a blackboard and/or newsprint to aid the team's work.

e. Procure ongoing secretarial assistance in order that the minutes can be taken at each meeting and prepared for distribution before or at the next meeting. The minutes are useful as a vehicle for organizing the team's work and should function to:

- Document team decisions.
- Organize the team's ideas into working papers or lists.
- Note assignments of tasks and expected completion dates.
- Distribute project schedules as these are generated.
- Distribute meeting agendas.

Secretarial assistance is also essential to later processes in the model when the team is devising or revising assessment instruments, reporting progress, contacting prospective respondents, and producing project reports.

2. Tracking Team Process and Progress

Certainly in the beginning and often at later points in the model, the team members can become frustrated with the feeling that they are "spinning their wheels." A regular procedure for processing and evaluating teamwork can be instrumental in formulating team cohesiveness and in ameliorating this problem. Processing and evaluating team efforts can also be used to overcome other problems common to teamwork such as overbearing or too reticent personality characteristics among team members and nonproductive methods of team operation. Therefore, it is strongly recommended that the team try out various process and evaluation procedures and modify these to their needs to maintain a sense of direction and progress. Various methods useful in processing teamwork can be reviewed in Technical Appendix C, p. 89.

3. Sharing Information

Another important procedure the planning team would be advised to establish is how it will keep its constituencies informed. This is not only helpful when it comes time to ask constituents for specific resources such as manpower, computer time, or money, but the team may also want to use its communication lines to constituents for checking or obtaining information. Certainly, those in the environment should begin to learn about the study so they will be willing to answer the team's assessment instruments. There are no set feedback procedures to follow. It is up to the ingenuity of the team and its individual members to keep its constituents informed. Some methods used by other teams include:

- Periodic reports of team activities by individual team members to their constituencies at staff meetings, student government meetings, residence hall meetings, etc.
- Reporting of news items, project reports, and team activities in the student newspaper.
- Having a special meeting or convocation of constituents to hear an address by someone knowledgeable in the model's theory and use.
- Periodic newsletters or memos to constituents informing them about the project and the team's activities.
- Designation of specific team members to keep key administrators informed about the project's progress.

4. Subdividing the Workload

The subdivision of the workload and the assumption of tasks to be conducted and completed outside of meeting times will become an essential procedure for the team. The earlier this procedure can be established, the better. Whenever possible, assignments should tap the member's special talents and interests. This will be more readily accomplisned as team members get to know each other better. However, it is good to get this procedure underway and general tasks can be assigned to every member early in the team's operation. Ideas for these early assignments are usually generated by the team as the result of their discussions and questions. A rule of thumb is to be watchful for ways that the team's expressed needs or interests might be fulfilled or advanced by an interim meeting assignment. Examples of such tasks might include:

- Collecting and sharing ecosystem literature.
- Interviewing three or four constituents concerning their ideas, needs, or reactions to the environment under study.
- Preparing a list of things that the member (or member's constituents) would like to know as a result of the study.
- Bringing to the next meeting a copy of a survey, questionnaire, or other assessment instrument that the members have found to be particularly useful.
- Making a list of resources that members might be able to tap for the team (such as students to whom credit could be given for work on the project; secretaries for whom time could be released for team secretarial needs; and record-keeping sources from which useful data about the environment could be collected).

Process/ Team Leader

The team's leader is a vital force in the development and functioning of the team. While it is often true that the project's originator becomes the team's leader and is certainly the one looked to for leadership at the initial meetings, it does not necessarily follow that he/she must be or should be the team's permanent leader. It is possible that, during the team's initial meetings, someone else could emerge as the team's natural leader. It is just as possible that the project's originator prefers that someone else assume leadership. Whatever the situation, it is suggested that, after team members have become better acquainted with

each other and the project, the issue of team leadership be an agenda item for discussion so that a permanent leader (or steering committee, if the team is large) can be selected.

During the lifetime of a planning team, various members will assume the leadership role by virtue of their specific knowledge or technical skill in the area under discussion. Thus the qualities needed for the team's permanent leader should center more on the ability to:

- Coordinate and direct team activities.
- Conduct facilitative procedures such as brainstorming, field force analysis, and consensus making.
- Give systematic, positive feedback and reinforcement to team members.
- Confront team members who are not doing their contracted work.
- Deal openly with conflicts and disagreements as these occur.
- Lead resolution of conflict between team members or team factions.
- Prepare meeting agendas if necessary.

Subject content of the team's initial meetings will be dependent upon the environment chosen for study and the interests and needs of those chosen to serve on the planning team. Thus Stage I has concentrated more on the processes that determine a successful start for the project and the team. Generally, subject content will progress from the broad project review and team understanding of the model to the team members' individual interests in and their objectives for the project. Then discussion usually centers on the commonalities among these objectives that might be adopted as project objectives. Once some common project objectives are accepted, discussion turns to the subject that initiates Stage II processes, namely, What to Assess?

* * *

Stage II

What to Assess

The determination of which environmental interactions or characteristics to assess will be the planning team's goal in Stage II. As the team discusses what it wants to learn from the ecosystem assessment, the conversation inevitably will turn to the school's values and goals and how these have been transmitted through policies and programs active in the environment under study. Therefore, the team enters the ecosystem model on step five, measuring student perceptions of the environment, but in so doing the team will also deal in some depth with the model's first four steps concerning the values, goals, and resulting environmental conditions that reflect these.

The decisions on what to assess should not be rushed because they will lay the foundation for the remainder of the team's work and will directly influence the type of data the model will procure for subsequent environmental redesign. Still, there is great temptation on the part of teams to overload the processes. Care should be taken to keep the discussion moving in a productive manner.

The team's first task will be generating ideas on what to assess. The next task that usually arises is the need to validate these ideas and make certain that the team has not overlooked an important environmental transaction or characteristic which should be assessed. The final task in Stage II is choosing the assessment categories which are needed and setting boundaries for the assessment.

The processes presented in Stage II are suggested as aids to help the team generate, organize, and moderate its flow of ideas on what to assess. The processes are given in the order in which most teams have applied them. However, it is common for a team to cycle through the processes several times, often trying different approaches, as it comes to a final determination on what should be assessed. Thus the processes interact with one another as the team clarifies the priorities, limits, and restraints for an ecosystem assessment.

Generating Ideas

Discussion

Some ideas about what the project should assess will have been discussed during the team's initial meetings. These ideas usually have been articulated in general terms and cover only the more obvious areas of inquiry. Thus the team's first task is to start generating more ideas and then to

strive for greater specifics. It is not unusual for a team to experience some difficulty in its attempts to become more specific. But once a team starts asking questions it would like answered about particular environmental conditions or transactions at work within a general area of inquiry, the team will have overcome this problem. The team will then have to strike a reasoned balance between the need for obtaining specific assessment questions and the temptation to make the list of questions too long. A useful system of checks and balances is to examine periodically the team's ideas and select those that are the most important.

A problem that may be encountered early in the process is the voicing of concerns over what can be assessed. There will be areas of inquiry that one or another of the team members will reject as a subject for assessment because the area is considered to involve policies or conditions that cannot be changed. When this occurs, it is advisable for the team to note the rejection and move on to another area of inquiry. In this way the issues can remain flexible. Then, as team members consider other areas of inquiry and discuss how conditions in these areas could be improved if the proper information were known, the advantages of an ecosystem assessment become more exciting and better understood. This dynamic often results in a team member reopening discussion on an area of inquiry he/she had originally rejected. Ensuing discussion can then set realistic limits on what can and cannot be assessed within the area of inquiry.

An important topic often raised during a team's discussions on what to assess is how the assessment will be accomplished. The third stage of this manual concentrates on this topic so that the ultimate selection of assessment techniques can be more closely matched to the team's defined assessment needs. When the subject of assessment techniques is raised during Stage II, it should remain subordinate to the main topic--what to assess--and be guided by the fact that this model will emphasize the use of assessment instruments on which respondents write their answers. While individual and small-group interview techniques and behavioral observation are valid and productive methods, they are impractical if many people within the environment's population are to be assessed. Therefore, it

is suggested that teams who want to use such techniques do so as additional measures to written instruments.

Process

The brainstorming process outlined in Technical Appendix B, p. 85, can be usefully employed to generate ideas for assessment. It may take several brainstorming sessions to free-up thinking and to surface the variety of ideas needed to tap information on all the transactions chat take place in the environment under study. Each session should be reviewed. The team should strive for a degree of specificity. A normal progression from an initial suggestion, Why do students break residence hall contracts? might be suggestions such as, Would students use sublet clauses? Are students willing to pay for additional services? and How do students learn about contract policy? during subsequent brainstorming sessions.

Once ideas run dry or become so specific as to be impractical, the process should be halted. Other indications that the process should cease are repetition of ideas or persistent rephrasing of the same idea. The team's effort are better directed toward other facets of the task such as grouping or categorizing the ideas and selecting those ideas that seem most important. Therefore, the review of each idea-producing session should be conducted with an eye on achieving specificity without letting the list of ideas grow so long as to become unmanageable.

The brainstorming process can be begun in a number of ways. Two suggested methods are:

1. The team brainstorms replies to the question, What do we want the data to tell us when we are finished? Example: Residence hall environment. Sample replies from first brainstorming session:
   - Why do students terminate living in the residence halls?
   - Do students like the maintenance service?
   - Which programs do students like?
   - Why do students change residence halls?
   - Would students be willing to pay more for better accommodations?

After the first brainstorming session, the team should try grouping their ideas. As various groupings are made, suggestions for category headings will emerge. The grouping of ideas into categories will help the team identify additional categories or areas of inquiry and become more specific as it conducts subsequent brainstorming sessions for each category. Example: the sample of above replies grouped and categorized:

Decision Making

Why do students terminate living in the residence halls?
Why do students change residence halls?

Facilities

Would students be willing to pay more for better accommodations?
Do students like the maintenance service?

Programs

Which programs do students like?

2. The team makes a list of environmental categories or areas of inquiry that its members would like assessed and conducts a brainstorming session for each. Example: Community college counseling center system:

   Category One--What do we want to know about our students? Sample replies from first session:

      Where do students go for information?
      What types of information do they need?

   Category Two--What do we want to know about student services?
   Category Three--What do we want to know about our teaching environment?

After a brainstorming session has been completed for each of the environmental categories or areas of inquiry, the team should review all the replies. Since some ideas may not always fit the category for which they were given, the need to reassign ideas to another category may occur.

Subsequent brainstorming sessions can be done for categories short of ideas or for all the categories. It may be helpful to arrange the replies generated in each session in columns side by side. This not only gives the team a ready review of their work, but it also provides a visual

illustration of how subsequent sessions produce more replies with greater specificity. Example: Sample replies from two brainstorming sessions on Category One given above.

First Session Replies	Second Session Replies
1. Where do students go for information?	1. Are advisors available when students need them?
2. What types of information do they need?	2. What is frustrating for students?
	3. Is the college catalogue helpful?
	4. How do students get information about choosing classes in their major?

Whatever method the team uses to initiate ideas on what to assess, periodically it should review the ideas in an attempt to determine if another approach could be more productive. Example: Community college counseling center system. The ideas generated during the first several brainstorming sessions reflected four areas of inquiry important to the counseling center system. These were: students--who they are and what they are like; goals--why students come to the college; college--its curriculum, services, policies, and peer groups; and the interactions of students, goals, and college. Thus subsequent brainstorming sessions focused on the new approach and its four categories.

* * *

Validating Ideas

Discussion

Once the team has generated a number of ideas and begins to formulate a working set of assessment categories, the need may arise to validate its work in one way or another. A suspected constraint on the proposed assessment, such as a policy, program, or physical property within the environment that should not be a subject of inquiry because no subsequent action could be taken to modify or change it, might need to be investigated. A team member may want to become more familiar with the environ-

ment in order to know what to assess or a team member may wish to become more familiar with specific transactions in the environment in order to identify whether or not vital assessment points have been overlooked; or, team members may want to determine whether they have covered all the areas of inquiry that should be covered.

Process

When this occurs, the opportunity for individual assignments and some communication with the project's constituents arises. Among some of the methods that might be used are to:

1. Assign the team member in the best position to obtain information about suspected constraints to explore what flexibilities might exist. For example, could the residence hall system offer better accommodations, and what kind, if students were willing to pay more? The team member assigned to explore this issue determines that the residence hall system could not accommodate individual air conditioners, hot plates, or refrigerators. It could accommodate more frequent linen and maid service and phones in individuals' rooms.
2. Assign those team members unfamiliar with the environment or a key transaction within it to explore the environment or experience the transaction personally. For example, have the member(s) attend a residence hall meeting, walk through several halls at lunch time or in the evening, observe what is going on, and talk with residents. Or have the member(s) actually experience transactions in the environment by assuming a key role. For example, the member assumes the role of a student, obtains necessary materials, and goes through registration or processes a course drop/add.
3. Develop a very short questionnaire that each member could ask several of his/her constituents to answer regarding the team's areas of inquiry in order to validate the team's categories and to determine if any areas have been overlooked. Community college counseling center system constituent questionnaire example:

   What do you think are the school's greatest strengths?
   What do you think are the school's greatest weaknesses?
   What do you personally find frustrating around here?

What do you personally find satisfying around here?
Have you had any contact with the Counseling Center?
What do you like most about the Center and its counselors?
What do you like least about the Center and its counselors?
What other issues about school are important to you?

Responses are compared with the team's areas of inquiry and additions or deletions made as appropriate.

* * *

Choosing Assessment Categories and Setting Assessment Boundaries

Discussion

Usually, discussions regarding constraints and the regrouping and categorizing of ideas will provide a preliminary narrowing of choices that the team needs to make regarding the scope of its assessment. Questions will have been raised and some decisions made about how many areas should be assessed and to what degree. It is possible that these discussions will have moderated the team's choices to the point that what it wants to assess is feasible to assess. However, inexperience with the model coupled with enthusiasm for the opportunities it opens to improve environmental conditions more often leads the team to exceed the model's optimum capability.

The single greatest constraint on the ecosystem model at this stage of its development is that it is time consuming to conduct and respond to its assessment techniques. If the assessment is too long, the respondents tire and the quality of information dramatically declines. Its greatest virtue should be that every question has utmost importance to the environment and thus respondents are not offended by the questions. A real hope for the model's future is that, as assessment of an environment is repeated on a campus, a core of environmental referents will emerge that can be subsequently incorporated into a mechanized test instrument. In this case, only new environmental referents will have to be sought by separate procedures.

Because the first application of the model does rely on rather involved procedures to obtain environmental referents, assessment categories and

items must be held to a realistic number. In order to develop practical assessment instruments, the team will have to devote time and energy to deciding what is most important and beneficial to learn from the assessment. It will have to set priorities and, ultimately, boundaries for the project.

The planning teams that have used this ecosystem model usually begin their task by reviewing the assessment categories that they have identified to determine those the team feels are the most important. Next, they have reviewed the ideas in each category to determine which of these need to be included in order to obtain the necessary information about the category. For some categories this can be accomplished with only a few questions; for other categories, it may take a number of questions to cover adequately the area of inquiry and obtain the necessary information. As the team reviews the assessment categories and items and sets its priorities, the assessment boundaries will be selected and established.

The team enters this process with at least one important boundary or parameter established, namely, who the assessment's respondents are to be. Other important boundaries to be established are the number of categories to be investigated (the assessment's scope), the number of questions to be asked under each category (the assessment's level of inquiry), and the constraints which must be honored from both environmental and model viewpoints. Common among these constraints will be computer capabilities and resources, monetary and manpower resources, and subjects of inquiry that involve values, goals, or physical properties which cannot be changed.

Setting priorities for areas of inquiry will often necessitate trade-offs among members of the team. Consensus rapidly develops over the importance of several categories. Then the particular interests that each member represents will emerge. The team will have to find ways to satisfy these claims while maintaining its goal to keep the assessment within reasonable limits. Accommodation and creativity is paramount.

This is also a point at which a team member or consultant knowledgeable in computer technology and assessment techniques can provide the team

with real help. Such a person can give the team guidance on computer capabilities and constraints as well as judgment on the assessment's ultimate length if this or that is included or dropped. And there are a variety of ways to obtain information. The team will need to know what alternatives could be used. It may well be that items can be incorporated into the assessment that will secure needed information without having to develop the item's full category. In this way some issues important to a team member can be retained even though the category may be dropped.

Process

The team's first order of business in choosing assessment categories is to assign each category or area of inquiry a rating of relative importance.

1. Each team member might be asked to rank order the categories. The categories can then be ranked according to team consensus.
2. Or the team may prefer to use a field force analysis (Technical Appendix B, p. 87) on each category to determine the rank order it should have.

Once each category's priority has been set, the team will need to decide how it can streamline or reduce the number of questions it wants to ask within each category.

1. One category which easily can be streamlined is demographic data about respondents. Since it is common for research to deal extensively with demographic data, team members often have an arm's length of items reflecting these interests. However, in the ecosystem model only a few demographic statistics will be needed for the purposes of separating responses by key groups (such as academic majors or night and day students) in order to compare these responses with the total group surveyed, or for the purposes of comparing the responses of two subgroups (such as women and men). Other demographic differentiations might be place of residence, age group, ethnic background, or year in school, depending upon the environment under study.
   a. Look at demographic items in view of environmental design and ask if it really is essential to know the information to plan

changes. Remember that most changes will stem from the information gathered through environmental referents--the respondents' written replies about why they have their perceptions.

b. Look for alternate ways to obtain desired demographic data. For example, residence hall environment demographic data could be pared to sex, residence hall, and academic major. In some cases, the place of residence might also be used to delineate freshmen, graduate students, or married students.

2. Another useful streamlining method is to rank each category's ideas or items and drop the least essential ones or conduct a field force or similar analysis on each to determine which would be most useful to retain.

3. Finally, the team may need to drop categories. If agreement cannot be reached, the team should look for acceptable accommodations.

   a. Retain what appears to be the category's most important item in order for the assessment to establish whether the category is critical. If response indicates the item is critical, then a follow-up study could be conducted.

   b. Determine if the items of a category are reflected by items in other categories. If so, choose the category most useful for design purposes. For instance, a list of information needs pertinent to residence staff may also be reflected in items suggested under staff/resident interactions. The interaction category ultimately will hold more value for design purposes. The team is best advised to drop the first category--residence staff--in favor of the staff/resident interaction category.

   c. Finally, if the team members or consultants knowledgeable in assessment techniques advise that the team still has more information desires than can be answered by respondents in a reasonable length of time--usually an hour to an hour and a half--the team should take action and drop as many low-ranking categories as needed to bring the assessment within time limits. An alternate course of action might be to let these categories and their items remain, proceed with Stage III processes for developing the assessment instrument and eliminate based on results of the instrument's pilot test. A consideration which should be given to this approach

is the fact that it can add significantly to the team's work in Stage III.

Stage II processes provide the team with a set of guidelines necessary for developing an assessment instrument. Once the team has established what it will assess specifically, the scope and level of inquiry, and who will answer the assessment, it is ready to begin Stage III.

* * *

Stage III

Developing the Assessment Technique

This ecosystem model employs a two-phase assessment technique to obtain the necessary information with which to design environmental conditions. The first phase elicits respondents' perceptions regarding the environment or behavior in the environment, and the second phase asks respondents to briefly describe why they have these perceptions. The condition, policy, program, or physical property discussed in the respondents' brief descriptions become environmental referents (ERs) for the model's design purposes. The team will need to develop the test instruments or methodology for this two-phase assessment.

The more usual testing approaches can be used in the assessment's first phase. The team can develop its own instrument, modify an existent instrument, or use a standardized commercial instrument. Since environments tend to have highly unique characteristics from one campus to another, the team must take care that the instrument adequately covers conditions particular to its own environment and does not cover conditions or situations which do not pertain to its environment. Many instruments are designed for and helpful in establishing comparisons among college environments but are not very helpful in studying an individual college environment. Therefore, it is highly likely that the team will develop its own instrument based on a composite of methods. However, a review of other instruments can be extremely helpful in doing this.

The assessment's second phase will have to be developed by the team. It involves the obtainment of environmental referents. A simple form may be devised on which respondents can write their answers. There are advantages in using a tandem approach in which respondents answer the phase one instrument and then immediately supply phase two environmental referent information on a form designed for this purpose. First, the team will have to conduct only one set of testing sessions. Second, the analysis of data from both phases can begin simultaneously. And from the respondents' viewpoint, they will be bothered only once. The team will need to develop its phase one instrument first so that its phase two method can match subsequent environmental referents to it. In the development of assessment procedures during on-campus applications of the ecosystem model, psychometric issues concerning the validity and reli-

ability of instruments were not a prime consideration. However, planning teams can certainly develop their own indices of reliability through split-half or test-retest procedures.

The processes given in Stage III have been developed and used by previous ecosystem planning teams. These are given in recommended sequence but are not all inclusive. Each team will probably add to the state of the art and develop processes useful to its work and to the advancement of ecosystem technology. Since the team sets important parameters for its assessment in Stage II, it can begin Stage III by conducting a review of assessment instruments that address these parameters. Often, as teams work through Stages III and IV, they find they want to readjust some of the areas of inquiry developed in Stage II. Two other essential tasks in Stage III include tailoring an assessment instrument or writing an original assessment instrument for phase one and developing an environmental referent form and analysis for phase two. The concluding two tasks entail processes for the assessment technique's pilot test and subsequent refinements that produce the team's final assessment technique.

Work on this manual proceeded while model applications were in progress. The procedures for reviewing, tailoring, or writing assessment instruments, and developing environmental referent forms have been distilled from experiences gained through three model applications. The procedures suggested for the assessment technique's pilot test have been written on the basis of two model applications. At the time this manual went to press, one model application had completed Stages IV and V. Therefore, the processes developed and given in Stage III for the analysis of environmental referent (ER) information have been tested by only one team.

Review of Assessment Instruments

Discussion

The team should assemble a copy of each assessment instrument it can locate that deals with the environment it is studying. Various offices on campus may well have a copy of applicable standardized commercial instruments. If the environment has been the subject of a previous survey, it is helpful to obtain a copy of the instrument that was used. A brief synopsis of commercial and other published Environmental Assessment Instruments is given in Technical Appendix D, p. 99.

The review of instruments might turn up one that the team feels can be used for its project. Short of this, the review will enable the team to become more aware and conversant with the ways an environment can be assessed and provide ideas for the development of its own instrument.

It is equally important for the team to familiarize itself with the capabilities and constraints that its available computer resources and programs have. It may be that some of the instruments' formats could not be accommodated by the team's resources. Again, this is a point in the process at which the team will need information from a member knowledgeable in computer technology or from a consultant.

Process

In reviewing the assessment instruments, the team should:

1. Determine which instrument covers all or the greatest number of the team's chosen areas of inquiry and data objectives.
2. Determine how closely the instrument matches the desired level of inquiry--are the items too general or do they cover important breakdowns the team wants to assess? For example, the team might consider an item such as, My room is satisfactory for studying, too general. They may want to know if facilities in the room are adequate, or they may even want to ask about such specifics as lighting or bookcases.
3. Determine if respondents could easily identify with the instrument's language. For example, on some campuses it is applicable to use the term "student union" in reference to the campus' facility for student activities, government, etc., whereas on other campuses it is more appropriate to call it a "student center." In some cases a campus will have even developed a jargon in connection with the environment. To stray from this could weaken the assessment's results by annoying or confusing respondents, i.e., calling the environment's eating place a cafeteria when it is known as the dining hall or coffee shop. In other instances, some words are taboo and cannot be used in an instrument. Sensitivities among campus constituents may dictate against the use of such words as hell and damn.
4. Determine if the instrument is a feasible length for administration on the campus.
5. Determine if resources or computer availabilities can accommodate scoring and analyzing the instrument.

6. Determine whether, given the above considerations, there is an instrument that the team could use, intact, with modification, and/or additional sections or scales.

* * *

Tailoring an Assessment Instrument

Discussion

If the team locates an instrument that it can use intact, then it can move on to developing its device or method for obtaining environmental referents. However, this fortuitous circumstance is not likely to occur often. The team will have a head start if it is able to locate an instrument that it can adapt for its assessment needs. The adaptations could entail writing additional items to achieve the level of inquiry desired, developing additional sections of items to cover facets of the environment not originally included, and changing words to reflect usage more common to the campus.

Process

In tailoring an instrument for its ecosystem project, the team should:

1. Obtain permission from the instrument's author(s) to adapt it and instructions on how to handle copyrights if necessary.
2. Decide in what ways the instrument will need to be tailored for use on the team's campus.
3. Review and apply the specific considerations given in the following section on Developing an Instrument as guidelines when tailoring an instrument.
4. Set up a systematic approach for making adaptations or changes. For example, the team may want to begin by deleting unusable items, then identify and change words that might annoy or confuse respondents, and finally write additional items or sections to accommodate the team's data objectives not included in the instrument. Or the team may want to subdivide into subcommittees to accomplish the tasks that will be needed in order to tailor the instrument. Whatever method is used, it is helpful to keep each task separate. The team may expe-

rience difficulty with some of these tasks in the beginning. Repetition develops facility and this is hard to achieve if the team jumps from one task to another and back again.

* * *

Developing an Instrument

Discussion

If the team cannot find an instrument applicable to its use from among those reviewed, then it will have to develop its own instrument to use for the assessment's first phase. Development of an instrument is a fairly complex and time-consuming task. It does pay off, however, in providing the team with the best instrument for assessing their campus environment. Experience has also indicated that instruments developed by the team have a high "face validity," or acceptance, with respondents.

One vital consideration in developing or tailoring an instrument is obtaining the degree of importance that each item has for the respondents. This is crucial information for the team because a negative perception of some aspect of the environment does not necessarily indicate that the aspect so rated is important to the respondent. In a time of very limited resources, services cannot afford to invest their time and energies in changes that are not seen as important by those who live in the environment. An importance to the respondent measure can be built into the phase one format, or it can be dealt with in the environmental referent section. Some teams have chosen to include some ratings of importance in the phase one instrument, as well as in the environmental referent form.

Process/ Format Review

The point of departure for developing an instrument is to review and become familiar with the various testing formats that can be used (see Technical Appendix D, p. 112, for a brief survey on Environmental Assessment Techniques). For purposes of this manual, these formats are classified as perceptual, goal statement, behavioral, and demographic.

Perceptual formats use a rating scale to measure respondent perception.

a. Likert scale presents a rating with discrete points (often five) which respondents use in replying to an item. The rating could be:

Strongly Agree (SA)	Agree (A)	Neutral (N)	Disagree (D)	Strongly Disagree (SD)
1	2	3	4	5

This campus is friendly. 1 2 3 4 5

b. Semantic differential uses opposite adjectives to describe aspects of the environment; respondents place a check mark to indicate their perception somewhere along the continuum given between the two extremes.

This campus is friendly - - - - - - - unfriendly.

Goal Statement format uses the magnitude of discrepancy between "is" and "should be" ratings that respondents give in reply to the goal statement to measure perceptions. For instance, a category or area of inquiry concerning student services' goals in an instrument could title the section Goal of Student Services and use the format to measure perceptions on a number of items under that title.

Goal of Student Services

	Of No Importance	Medium Importance	High Importance
	1	2	3
1. To help provide a friendly campus *is*	☐	☐	☐
should be	☐	☐	☐

Behavioral format poses items about the environment in action or behavioral terms and asks respondents to note how often or how seldom these apply in their case.

I have talked with my advisor.	Once	2 to 5 Times	Never
	1	2	3

Demographic format assigns each choice in a category a code number and asks respondents to indicate the one applicable to them. The number of codes which can be used will depend upon the available computer program.

Your age

0 = 17 and under

1 = 18

2 = 19

3 = 20

4 = 20-25

Are you a transfer student?

7 = Yes--from a two-year college

8 = Yes--from a four-year college

9 = No

The perceptual, goal statement, and behavioral formats are most useful in connection with environmental referents. The demographic format is used in this model to give planners the capability to separate groups in terms of future redesign and programming. For example, it may be important to separate responses by the respondents' age or major to determine if needs and perceptions are similar to diverse age groups and academic pursuits.

The collection of demographic information should be limited to that which the team can reasonably use. Including a large number of categories produces more data than can often be dealt with and also requires a larger sample of respondents in order to assure that a sufficient number of respondents are included in each of the categories.

Process/ Format Selection

The team may choose a single format for writing items or it may use different formats for different areas of inquiry or categories of items. Team members often find that they need to practice writing some items in order to get a feel for the process before they can make definite decisions regarding the selection of a format or formats. Thus, there can be a great deal of moving back and forth between this section and the following one on item writing.

A suggested process would include these steps:

1. Become familiar with possible formats for the phase one instruments.
2. Choose one of the data objectives that the team has selected for assessment.

3. Have each team member write one or more items on this data objective, using one or more of the possible formats.
4. Have team members critique the items written in terms of how well the chosen format "fits"; that is, how well does the format elicit the desired information? (For this step, it is advisable to review the next section on item writing.)
5. Have the team repeat this procedure on three to ten different data objectives, or until it can make a tentative decision regarding what format or formats will be most useful.

As a result of its work with the basic assessment formats, the team may even wish to create its own format. In such instances, the team usually blends several aspects from standard assessment formats to obtain the information that will meet its specific desires.

The format selection process which interacts with the next section on item writing concludes when the team has:

1. Tentatively decided on a format or formats to use in writing items.
2. Decided how the assessment techniques will identify which items are most important to respondents.

Process/ Item Writing

The team may decide to write all the phase one instrument items as a team or it may divide into committees and have each committee write items for individual sections or areas of inquiry. If the latter course of action is chosen, the planning team as a whole would then review each section for revisions and approval. Whatever approach the team chooses, it is advisable for all the team members to practice writing some sample items and critique these before undertaking the task in full.

The practice will readily demonstrate the variety of ways an item may be expressed, and team members will soon identify those formats which best convey the subject matter on which they desire information. After several practice rounds of writing items and giving them a critique as suggested under *Process/Format Selection*, members will become adept at producing items that best seek the information desired.

1. Important considerations to keep in mind while writing items for the instrument include:

   a. Writing clear and concise items to which respondents can easily reply. Each change of format should be accompanied by a set of equally clear instructions so that the respondents will understand what to do.

   b. Never asking about two things in an item or include more than one environmental element. If two points are included, the result will be an uncertainty on which point the respondent has replied when the data are analyzed. For example:

      Vandalism occurs because the place is rundown and students don't respect others' property.

SA	A	N	D	SD
1	2	3	4	5

      <u>should be stated</u>:

      Vandalism occurs because students don't respect others' property.

SA	A	N	D	SD
1	2	3	4	5

      <u>and</u>:

      Vandalism occurs because no one cares about keeping up this place.

SA	A	N	D	SD
1	2	3	4	5

   c. Use language, even some jargon when necessary, that the respondents commonly use or associate with the environment.

   d. Be aware when adjectives are used in an item. Such words as "most," "few," and "usually" can load an item, diminish specificity, and thus, can bias results. For example:

      It is usually quiet in the dorm.

SA	A	N	D	SD
1	2	3	4	5

      <u>versus</u>:

      It is quiet in the dorm when I need quiet.

SA	A	N	D	SD
1	2	3	4	5

Most rules are too restrictive.

SA	A	N	D	SD
1	2	3	4	5

versus:

Regulations on decorating rooms are unreasonable.

SA	A	N	D	SD
1	2	3	4	5

and:

I would not like twenty-four hour visitation every day.

SA	A	N	D	SD
1	2	3	4	5

At other times, adjectives are needed for clarity or to establish the extent or degree to which the statement applies. For example: Bull sessions about serious topics are a frequent occurrence. Most students living here are respectful of others' rights. I've had very few conflicts with the people living in my dorm. A good rule of thumb is to put yourself in the respondent's shoes to determine whether an adjective helps you or causes you a problem in replying to the item.

e. Phrase items in a manner that will prompt the respondents to think of specific environmental referents when they answer the assessment's second phase. For example the phrase "facilities in my room" will help respondents think of such things as lighting, bookshelves, and desk space when they come to explain their reply on a statement such as, The facilities in my room are adequate for studying.

f. Attempt to use behavioral terms or terms on which there appears to be wide consensus. Avoid technical terms or those which describe emotional states which may be interpreted differently by various respondents. For example:

I experience stress in the classroom.

SA	A	N	D	SD
1	2	3	4	5

versus:

There are factors or situations in the classroom which make me feel uncomfortable and interfere with my learning.

SA	A	N	D	SD
1	2	3	4	5

I need assertion training.

SA	A	N	D	SD
1	2	3	4	5

versus:

I need help in learning how to stand up for myself so people don't take advantage of me.

SA	A	N	D	SD
1	2	3	4	5

2. When the team has established a level of satisfaction in writing items, it will need to:
   a. Seek advice from a consultant or team member knowledgeable in assessment techniques to assist in reviewing its practice items.
   b. Determine if the format or formats initially agreed upon are usable.
   c. Make a final decision regarding the formats it wishes to use for which sections or areas of inquiry.
   d. Set up systematic approach for developing the instrument and writing items. This might include how the team will divide to write items.
3. When the team has completed writing items for the phase one instrument, it should be given a final review and 20 to 30 copies prepared for a pilot test implementation.

Process/ Answer Sheets

Once formats have been decided upon and items are being written, it is important for the team to decide how to set up an answer sheet for the phase one instrument. It is necessary to have a clear format for the answer sheet to aid the respondents in giving their replies. It is also essential that the sheet be set up with the constraints of the available computer programs in mind. At this point, the team or a subcommittee of team members will need to determine:

1. The number of spaces (codes) available in the program being used for responses to any one demographic item.
2. Whether they will use keypunch or use a method to have the data read directly from the answer sheets.
3. A general plan for setting up the answer sheets to accommodate the items in the instrument.

The final setting up of an answer sheet will have to await the completion of the phase one instrument. Often it is necessary to consult with someone outside the team for this task, as it tends to be a fairly technical process.

Process/ Instrument Data Analysis

It is also very important at this point in the process for the team to decide what information they want from the computer analysis of the data. The team will most likely need to work with their computer consultant to determine the appropriate program(s) that will provide the information they desire. Specific questions which must be answered include:

1. How will data be reported? (Reporting in percentages is a common and useful procedure.)
2. Will data be reported only for the total population or will the responses be broken down in terms of key demographic variables? (This latter procedure can be used initially or can be accomplished at a later time if so desired.)
3. Will any tests of statistical significance be required?

* * *

Developing an Environmental Referent Form

Discussion

Phase two of the ecosystem model's assessment is fundamental to its originality and to its later design processes. It is the information obtained from this part of the assessment that will be most useful to the planning team in developing environmental designs or changes. A form needs to be developed on which the respondents can write descriptions of what is happening in the environment that produces their perceptions of it and thereby provide the necessary environmental referents. A method for analyzing this environmental referent information must also be devised.

Three examples of ER forms are given below. The process suggested for developing the assessment's second phase is to devise the form on which respondents will record their ER information, then concentrate on developing a method for analyzing the information. This sequence is recommended because the devise or form that is created usually sets up the

order in which ER information will be given, and, thus, can affect the design for analyzing the data.

When using the ER form in tandem with the phase one instrument, it is recommended that the respondents not be given complete details about the form until they have finished the instrument. Details about the form could become confused with instructions for the instrument, and the respondents might be tempted to bias their replies on the instrument in order to avoid having to answer many items on the ER form. However, it is fair and often essential to briefly inform respondents that they will be requested to give additional information on items.

Process/ ER Form

Guides to follow in creating an ER form for phase two of the assessment technique include:

1. If an importance measure (those items considered most important by respondents) is to be obtained through the ER process, a method will have to be established by which respondents indicate importance on the ER form or through the selection of items for which they give ER information. Thus, when the data are analyzed the team will know which parts of the environment are most beneficial to retain and to change.
2. When a tandem approach is used, the ER form will need to establish a way to show <u>how</u> the respondent replied to items on the instrument. This is necessary because it is important to know whether the subsequent ER information stems from a highly negative or positive response.
3. If it is important to study ER data according to demographic information, the ER form will need to establish a method by which the respondents can provide the needed demographic information on the form.
4. The ER form will need to ask <u>why</u> the respondents replied as they did.
5. The ER form will need to ask <u>what</u> the respondents suggest to correct or improve the situation and <u>what</u> should be retained.
6. Give clear instructions for the ER form's use, preferably with illustrations.

7. After reviewing the example ER forms below, the team can either adapt one for its use or develop its own ER format. The subsequent ER form should then be prepared for a pilot-test implementation on some 20 to 30 respondents.

An ER form designed by Leland Kaiser, James H. Banning, and LuAnne Aulepp for use in tandem with a standardized, commercial instrument, The Institutional Goals Inventory,* could be adapted for any instrument employing the Goal Statement format (see Figure 2, p. 43).

In the case of this ER form, respondents are requested to review the first 90 items in the instrument and provide ER information on each item for which they have indicated a discrepancy of more than one-column space (see IGI format as illustrated in Figure 2).

The team will thus obtain ERs on those items for which there is the greatest discrepancy between "is" and "should be." However, there is no research to date which proves it necessarily follows that these items are the most crucial to respondents. In other words, a respondent might indicate that a high discrepancy exists, but the fact that it does exist may not be at all important to the respondents.

An importance measure could be built into this ER form by changing the way the respondents are to select items on which to give further ER information. Respondents could be asked to circle the numbers of those items that have the most importance for them as they answer the instrument, then instructed to use the ER form to give further information about the items they circled.

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*The Institutional Goals Inventory, copyright © 1972 by Educational Testing Service, published and distributed by the Institutional Research Program for Higher Education, Princeton, N.J.

Figure 2. Kaiser, Banning, Aulepp ER Form

ER Instructions:

Now that you have completed the Institutional Goals Inventory, please respond further to those statements to which you have indicated a discrepancy of more than a one-column distance between "is" and "should be."

(I.G.I. EXAMPLE)

		of no importance, or not applicable	of low importance	of medium importance	of high importance	of extremely high importance
1. To prepare students for graduate school	is	1	●	3	4	5
	should be	1	2	3	●	5

In the sample above, the respondent blackened the oval in column 2 for "is" and the oval in column 4 for "should be." This is a discrepancy of more than a one-column distance between "is" and "should be." The attached booklet contains seven pages with a set of numbered spaces that correspond with each page of the Institutional Goals Inventory questions you have answered. Number 1 refers to statement number 1 in the Inventory, number 2 refers to statement number 2, etc. Now briefly write a statement describing your feeling of why the discrepancy exists on your campus and suggest some measures that could be taken to improve the situation. Your suggestions for improvement might include changes in policy procedure, regulations, activities, programs, and curricula.

ER Example and Form:

"To prepare students for graduate school"

	Why do you feel the discrepancy exists?	What can be done to improve the situation?
1.	The undergraduate faculty are more interested in general education than in the professions.	Permit undergraduate students to attend graduate classes for credit.

In a similar manner, please fill in the appropriately numbered boxes for each of the 90 statements on which you have indicated a discrepancy of more than a one-column distance between "is" and "should be."

1.	
2.	
3.	

Another ER form originally designed by Barbara Peavey, Ursula Delworth, and LuAnne Aulepp, and subsequently revised through model applications, has been used in tandem with instruments employing the Likert scale format (see Figure 3, p. 45). Respondents are asked to circle the numbers of items that hold significant importance for them as they answer the initial instrument. Then the ER form is given and the respondents are instructed on how to provide additional information about the items they have circled. In this manner the ER process is used to establish the importance measure. In this procedure, it is suggested that respondents be given a minimum number of items on which they are expected to provide ERs.

Figure 3. WICHE Ecosystem Model ER Form

ER Instructions:

In the preceding parts of this survey, you stated how you feel about various services and conditions at [name of school]. It is also important to know why you feel the way you do and what you would suggest to improve or maintain each service or condition that is really important to you; for example, what you don't like about it and what could be done to improve it.

Now, please go back to the statements you circled in Part II as being important. Reread those statements and select at least five to give additional information about. (If you did not have the chance to circle statements important to you, please take time to select the statements now.) Remember, you select at least five statements that are important to you because: (1) you feel the service or condition meets your needs and it is important to you that it remain as it is, or (2) you feel the service or condition must be improved or changed in order to create a satisfactory experience for you.

In the spaces provided on the following sheets, please write your reactions and recommendations in four steps.

Step 1: Write the number of the statement you circled.

Step 2: Circle the response you made to the statement.

Step 3: From your experience, explain in your own words what exists or has happened at [name of school] to make you answer the way you did. Please be as specific as possible.

Step 4: Explain in your own words what you would recommend be changed to improve the situation or what you would recommend remain unchanged. Please be as specific as possible.

ER Example and Form:

(100)- There are enough parking places at [name of school]. SD ● D ○ A ○ SA ○ ? ○

Step 1	Step 2	Step 3	Step 4
Statement number	Transfer your response (please circle)	What things at [name of school] exist or have happened to make you feel this way?	What would you recommend be changed at [name of school] to improve the situation or what things should remain unchanged?
		PLEASE BE AS SPECIFIC AS POSSIBLE	
100	(SD) D A SA ?	I have trouble finding a place to park during the busiest time of day.	Provide more parking places.
	SD D A SA ?		
	SD D A SA ?		

An ER format developed by John Corazzini, Lois Huebner, and Susan Wilson at Colorado State University, eliminates reference back to the phase one instrument in order to complete the ER form. Pages of the ER form are wider than the pages of the instrument and can be attached behind each page of the instrument so that only a column of boxes is visible while the respondents answer the phase one instrument. Respondents answer the instrument according to instructions and then write the answer they have given in the corresponding ER form box that is visible (see Figure 4, below).

When respondents have finished the instrument, it is detached. The remaining ER form repeats each of the phase one instrument's items. Respondents can then complete these forms (see Figure 5, p. 47) according to instructions without having to refer back to the first instrument. The instructions for this ER form ask respondents to give information for certain answers in response to phase one items. A similar direction could also be used to ask respondents to write information on items that were most important to them.

Figure 4. Corazzini, Huebner, Wilson ER Form as Visible during Phase One

Phase One Instrument

Please respond to each of the statements below, following the instructions given on Page 1.

	Strongly Disagree	Mildly Disagree	Agree/ Disagree Equally	Strongly Agree	Agree
1. My major is preparing me for a job.	1	(2)	3	4	5
2. Help in making a vocational choice is available to me at [name of school].	1	2	3	4	5
3. I am satisfied with self-directed learning experiences at [name of school].	1	2	3	4	5

Figure 5. Corazzini, Huebner, Wilson ER Form

ER Instructions:

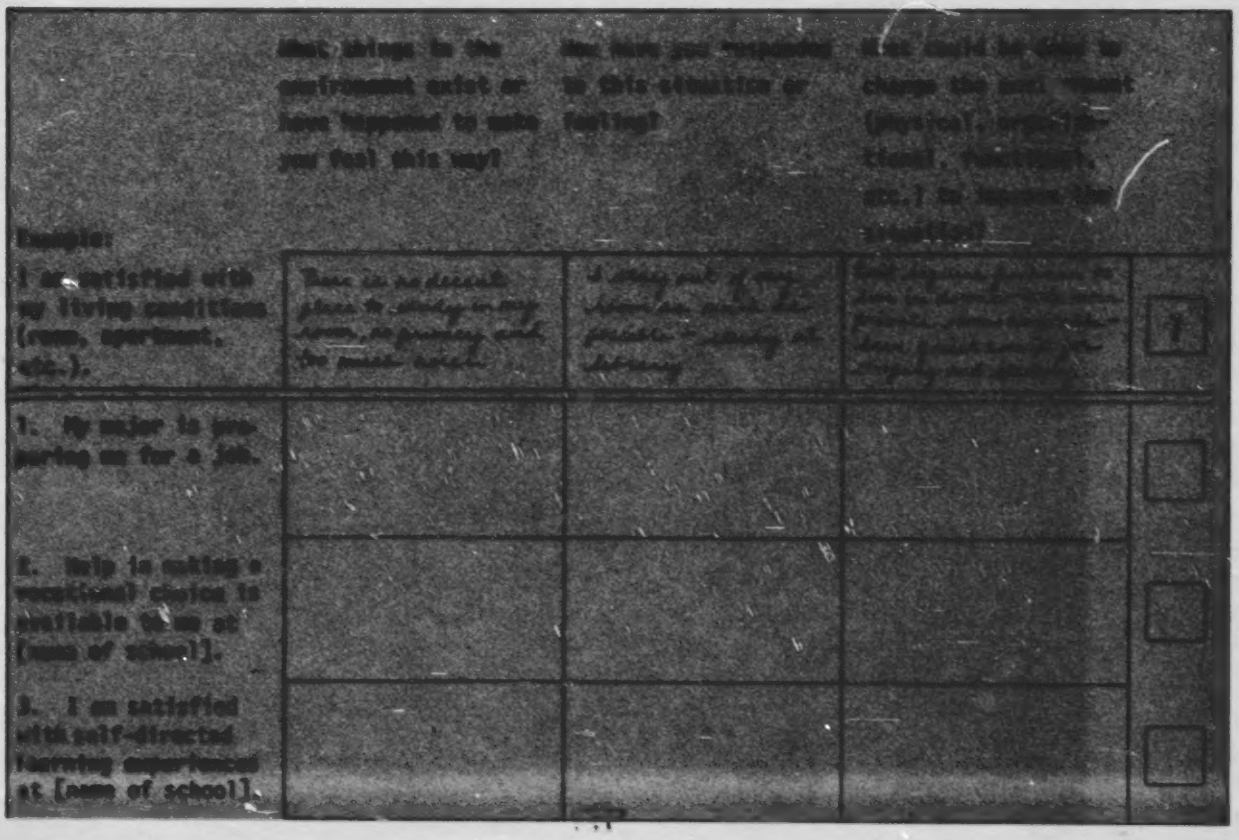
In Part II, the statements in Part I are repeated. Your responses are also recorded in the boxes to the right. You are now asked to give additional information about those questions to which you responded "Strongly Disagree" (1) or "Mildly Disagree" (2). Do this by answering each of the following three questions about that item:

1. What things in the university environment (physical, organizational, interpersonal, functional, etc.) exist or have happened to make you feel this way?
2. How have you responded to this situation or feeling?
3. What could be done in terms of a change in the environment (physical, organizational, functional, etc.) to improve the situation?

Remember, you are to respond only to those statements that have a "1" or a "2" in the box to the right.

ER Example and Form: (N.B.: ER Form is illustrated after detachment from phase one instrument)

Using the example in Part I, suppose you have responded with "Strongly Disagree" (1) to the statement, "I am satisfied with my living conditions (room, apartment, etc.)." You would now answer the above three questions about why you "Strongly Disagree" with the statement that you are satisfied with your living conditions.



Process/ ER Analysis Method

Just as the team needed to consider computer programs and capabilities for scoring and analyzing data in its development of the phase one instrument, the team must devise some method of analysis for ER data so that it can consider the resources it will need to implement the analysis. Often, students who could receive credit for conducting the assessment process and analyzing the ER data are recruited by the team. There are times the environment will have staff personnel who can be recruited. Whoever is recruited to help the team implement the assessment and assist with the ER analysis will have to be trained. Training cannot proceed until an ER analysis method is developed.

An ER analysis method has been devised for the WICHE ecosystem model ER form illustrated above. A similar method could be developed for any ER form by readjusting it to accommodate the needed demographic breakdown and the response format used in the instrument. The experience with ER analysis is based on work with only one model application. Planning teams may well devise alternate methodology more appropriate to their own uses.

The following steps comprise this ER analysis method:

1. The ER form is retained by the team or its implementers for scoring and analysis while the phase one instrument is sent to the computer for scoring and analysis.
2. The first step in analyzing the ER data is to take an ER item count. The ER item count entails a simple tally of the number of ER responses received per item on the initial instrument. When the team has selected an important demographic breakdown, the item count should be taken according to demographic category. Tally forms might look as follows:

Total ER Count

Item	Number of ER Responses
1	1
2	0
3	10
4	23

ER Count by Demographic Breakdown

Item	Number of ERs (day students)	Number of ERs (night students)
1	1	0
2	0	0
3	6	4
4	6	17

3. After an ER item count has been tallied, the tallies are assembled and an ER item chart is compiled. This chart provides a global view of the total number of ER responses per item and per demographic category, if desired. The team then has a quick and readable summary of those items receiving the highest number of ER responses system-wide. If broken down into key demographic variables, the summary also provides a list of those items receiving the highest number of ER responses from specific groups. The chart might look as follows:

ER Item Chart

Item	Total ERs	Day Students	Night Students	Men	Women
1	1	1	0	1	0
2	0	0	0	0	0
3	10	6	4	5	5
4	23	6	17	14	9

4. Using the information displayed by the ER item chart, the team selects those items that should be given an ER content analysis. Items with a high ER response overall are good candidates for analysis. If the responses are broken down into demographic categories, the team may want to rank order those items on which a high number of ERs were given by a particular group.
5. When the decision has been reached on which items are to be analyzed, the items can be grouped according to their parent sections or scales used in the instrument for each area of inquiry. Those analyzing the items should be assigned items within a particular scale or section. At this point the ER forms will have to be cut apart and grouped according to item number and scale. If important demographic variables are being scored and analyzed by computer, the team will have had to code the instruments and ER forms. Thus it will be necessary to write this code number on each ER response before the ER forms are cut

apart and grouped. The team may want to photocopy the complete set of ER responses before cutting them apart. Then, if some are lost, the original set can be referred to.

6. The first step for those who analyze ER responses is to sort each item's ER forms according to the "Agree," "Disagree," and "Neutral" responses. This is done by looking at which response the respondent has circled on the ER form.
7. The person then takes all the "Agree" responses and reads the respondents' "Why" comments several times until it is possible to group similar "Why" comments into a few categories. In some instances, a single response may have to constitute a category, but the fewer categories that have to be made the better.
8. Then the person should develop a heading or name for each of the categories and briefly describe it.
9. Then tally the number of "Why" comments in each category.
10. And finally, record information on "Agree/Why." (See Figure 6, p. 51) for an example of the ER Content Analysis Sheet that was developed for this purpose.)
11. Once the "Agree/Why" comments have been categorized, tallied, and recorded, the "What" comments contained in each "Agree/Why" category are read. Again, when possible, similar comments should be grouped and categorized.
12. A tally is taken on the number of comments that make up each "What" category. When it is impossible to group a comment, it should be listed as a category.
13. Data concerning the "What" comments are recorded under their appropriate "Agree/Why" categories. (See point D in the ER Analysis Sheet.)
14. The same processes of reading, grouping, categorizing, tallying, and recording comments is applied to the "Disagree" and "Neutral" responses on the item.
15. The entire process is repeated for each item that has been assigned to be content analyzed.

Figure 6. Environmental Referent Content Analysis Sheet

Please fill in appropriate information for the type of analysis being done.

Analysis Item Number_____

State Item Text_____

_____

Analysis is for (circle one) Agree, Disagree, or Neutral responses.

Please record your analysis information on this item in the proper spaces below. If you have more categories than provided for on the sheet, please follow this format in presenting the information on additional sheets. Staple all additional sheets on an item to the proper ER Content Analysis Sheet.

"Why" Category Number One

A. Name of Category_____

B. Description of Category_____

_____

_____

C. Number of Responses in This "Why" Category_____

D. List Below Corresponding "What" Categories Number of Responses in Category

"Why" Category Number Two

A. Name of Category_____

B. Description of Category_____

_____

_____

C. Number of Responses in This "Why" Category_____

D. List Below Corresponding "What" Categories Number of Responses in Category

This analysis method results in ER data that can be reported statistically but retains the descriptive quality necessary for design purposes.

* * *

The Assessment's Pilot Test

Discussion

The team is now ready to pilot test their assessment technique. By conducting a pilot test, the team can determine how long it will take respondents to complete the assessment procedures, to identify items that require revision or deletion, and otherwise to obtain a feeling for the assessment's usefulness.

Unless the respondent population is quite small and cohesive, it is best to pilot test the assessment on its intended respondents. Using respondents from the target population far outweighs the possibility that a full-scale assessment might be jeopardized by knowledge of the testing procedure becoming widespread. In past applications of the model, neither the pilot test nor sequential testing sessions has resulted in the respondents shortchanging ER information. Respondents have been aware that additional information would be requested on items, but completion of the ER form by one set of respondents has not reduced the number of answers given by later respondents. The only time this hazard might become a serious consideration in the selection of the pilot test population would be in the case of a small, cohesive group. In this event, the team might want to locate as similar a population as possible for purposes of the pilot test.

Having the assessment instrument answered by some 20 or 30 respondents should provide the team with sufficient information to refine and make final their assessment technique. The pilot test will also provide ER information for use in training people to conduct the team's ER analysis. In this manner the information received in the pilot test can serve to test out the team's method of ER analysis.

Process

Important guides for the assessment technique's pilot test should include:

1. Selecting a small random sample from the target population or as similar a population as possible.

2. Timing how long it takes respondents to complete the assessment procedures.
3. Debriefing the respondents on their reactions to the assessment, including their comments on whether language used in the assessment was easily understood by them; what word substitutions they might suggest; what, if any, items seemed ambiguous to them and why; what, if any, items seemed irrelevant to them and why; and whether the instructions for the assessment procedures were easily understood and followed.
4. Arranging an expression of appreciation such as lunch or cookies and coffee for pilot test respondents.

* * *

Final Assessment Technique

Discussion

Based on results from the pilot test, the team can make final adjustments on its assessment technique. If the assessment procedure is too long, then the team must make modifications. It is recommended that testing time not exceed 90 minutes; if adequate information can be procured in an even shorter time span, this is preferable.

The team does not necessarily have to send the responses of the pilot test on its phase one instrument to the computer for scoring and analysis. It will conserve resources and be much better if the team personally reviews them because the important information at this point will be the respondents' reactions and comments on the instrument's items and whether these items are prompting good ER responses. The latter are determined by comparing the ER responses to their parent item on the instrument. This can be facilitated by retaining the instruments so that each team member will have a copy from which to work.

The cost and services needed to prepare the instrument and form for implementation can be given realistic estimates after the team has made final its assessment technique. Team members who have been informing those persons in a position to provide these resources about project activities and progress should now confirm that the final estimates are agreeable and able to be met.

Process

To complete its work on developing an assessment technique, the team will need to:

1. Review all results of the pilot test.
2. Rewrite ambiguous items.
3. Rewrite items that do not appear to elicit good ER information.
4. Cut items considered in the final analysis to be not very important.
5. Change wording as may be indicated.
6. Rewrite any ambiguous instructions.
7. Re-do any part of the answer sheet that was not clear to respondents.
8. Readjust a format if several respondents had trouble using it. (Another important indicator for the need to adjust a format is obtaining consistently unusable information in response to it.)
9. Determine how the instrument and/or procedures can be trimmed if the testing period exceeds 90 minutes or the time available for testing. Suggestions for this might include:
   - Asking half of the respondents to give ER information on the first half of the instrument, and asking the other half to give ER information on the remainder of the instrument.
   - Deleting one format in the phase one instrument if the format contains few items that could be rewritten for another format.
10. Confirm with those providing project resources, such as money and/or services, that the estimates for those resources are agreeable and can be met.

When the final adjustments and/or modifications of the assessment technique have been made, clean copies of the corrected instrument, answer sheet, and ER form should be made for the team's final review and approval. If no further corrections, additions, or deletions are made, the instrument, answer sheet, and ER form can be proofread and sent out for printing. If changes are made, then the instrument and ER forms need to be corrected and proofread. The team is now ready to proceed to Stage IV processes; these involve administering the assessment technique and analyzing its results.

* * *

Stage IV

Assessment and Analysis

The implementation of an ecosystem assessment and analysis involves the participation of many people and the coordination of a number of tasks. The largest group of participants will of course be the assessment's respondents. Those who conduct the computer scoring and analysis of data from the phase one instrument will be important participants. The team may well need assistance in implementing the assessment. It may also want these implementers to do some portion of the ER analysis. Therefore, implementers are another set of important participants. Staff or personnel working within the environment will be indirect participants, if not direct participants in some capacity.

The team's major overriding task in Stage IV, then, will be coordinating and overseeing the work and activities of the project's many participants. An adjunct task will be informing everyone in the environment--including staff--about the project and why the assessment is being taken. An obvious task will be selecting and contacting the assessment's respondents. If implementers are used, most likely they will need some training, and arrangements will have to be made for the assessment's testing sessions. The team will also need to keep a close liaison with its computer personnel and its team members' constituencies.

In Stage IV these tasks are reviewed from the standpoint of setting up an assessment schedule and then discussed in more detail with suggested processes that the team can use to coordinate activities, implement the assessment, and conduct data analysis. The team will need to decide which of its members will take responsibility for which of the tasks it schedules. An adequate period of time should be assigned for the completion of each task. Experience with the model indicates three to four months are needed to successfully implement the assessment and conduct the first analyses on its data.

Setting an Assessment Schedule

Discussion

The team will find that the implementation of its assessment technique and analysis of data will go more smoothly if it sets up a schedule and assigns members to oversee the completion of each task. A governing factor in setting up a schedule will be choosing the most opportune time

to give the assessment instruments. Respondents need to be familiar with the environment. The influx of new people each semester or quarter, especially in the fall, necessitates a settling-in period before everyone has experienced an environment long enough to be able to give an informed judgment concerning its impact with adequate environmental referents.

This consideration suggests that eight weeks into a quarter or semester is a good time to begin the assessment. The team will also need to consider whether the design or change of the environment that will result from the assessment can be made in time to evaluate its impact on the same population. The ecosystem model is best used when its full cycle is applied to the same population in an environment. Therefore, an ideal schedule for the academic year would be a mid-autumn administration of the assessment technique, with initial analysis of data completed by early winter so that any subsequent redesigns could be in place by early spring and evaluated near the close of the academic year.

This ideal schedule will need to sequence properly with another obvious consideration in choosing the opportune time to conduct the assessment. Respondent attendance at testing sessions can be seriously eroded if these sessions are scheduled too near examination periods. Computer time may be at a premium during these periods, too, if the team's computer facilities are also used for scoring school exams and recording student grades. Thus any schedule must take these factors into account as well.

After the team has determined the best time to conduct its assessment, it can then work backward to schedule the tasks it needs to complete before giving the assessment instrument. In a similar manner, the team can also schedule data analysis tasks in accord with the date that the computer scoring of data will be available. Depending upon the computer situation, the team may want to proceed with the analysis of ER information while awaiting the computer analysis of phase one instrument data.

Process

In setting up its data collection and analysis schedule, the team will have a set of tasks generic to the ecosystem model, as well as tasks unique to its situation and project. Tasks common to the model that need to be scheduled are listed below in their recommended sequence. To establish the time line for each of these tasks, it is suggested that the team briefly review the material given on each of these tasks in the remaining sections under Stage IV. The team should incorporate into its schedule the other tasks unique to its situation as appropriate.

1. Selection of respondent sample
2. Arrangements for testing procedures
3. Communication with key personnel
4. Recruitment and training of implementers
5. Project publicity
6. Respondent contact and scheduling
7. Assessment testing sessions
8. Computer scoring of data
9. Scoring and analyses of ER data
10. Initial comparative analysis on ER and computer data
11. Initial report on assessment findings

* * *

Selection of Respondent Sample

Discussion

The team must determine both the size and composition of its respondent sample. The sample must be large enough to be representative of the entire population and should include an adequate number of respondents from key demographic categories on which the team will want to compare data. Taking a random sample of the entire population or a random sample within demographic categories (e.g., a sample from the residence hall system versus a sample from each residence hall) will accomplish this.

A stratified random sample can be utilized when the team wants to assure that the percentage of respondents in the sample is equal to the percentage of persons in that demographic category within the total population. Thus, if 25 percent of the entire population are women, the team would choose a random sample of women to equal 25 percent of the group to be assessed.

Generally, at least a ten percent sample of the population is desired. A higher percent is always desirable and should be possible when the population is small. It is usually important to obtain a sample in excess of ten percent if a random sample within demographic categories is the chosen method (e.g., each residence hall).

Process

To select a respondent sample the team will need to:

1. Determine what percent of the entire population is most feasible to test. Generally at least a ten percent sample of the population is desired. A higher percent should be possible when the environment's population is relatively small.
2. Determine the ratio of respondents that will be needed from the total sample for each demographic breakdown on which data will be analyzed. Colleges often routinely collect such data (e.g., percentage of day versus evening students).
3. Once the total number of respondents has been set with the corresponding ratios of people needed to represent demographic breakdowns, a random or stratified random sample should be selected from among the possible respondents. Usually, this is a simple procedure, for most schools have data banks from which a random selection of respondent names and addresses can be pulled that accommodate the team's desired needs. In some situations, notably colleges composed of commuter students, the only feasible testing situation will be during class sessions. In this case, it is important that classes either be chosen randomly or in a careful selection process so that class members will reflect characteristics of the total student population. It is also possible to test a larger group and have the sample chosen by computer to reflect percentages in the total population.
4. Order or have printed the required number of instruments, answer sheets, and ER forms needed to accommodate the number of respondents to be included in the sample size.

* * *

Arrangements for Testing Procedures

Discussion

Testing procedures will vary, depending upon the number of people in the sample size. The team needs to set up its testing procedures so that testing space can be scheduled and whatever tasks the team wishes implementers to oversee in regard to contacting and scheduling respondents can be incorporated into the team's training for implementers.

Mass testing has proven to be an efficient procedure for the model. When a mass testing approach is used, an adequate testing place must be located. If the sample is very large, then several mass testing sessions will have to be scheduled. However, the contacting and scheduling of respondents can be less complicated with this approach.

Letters inviting members of the sample to participate can have postcards enclosed that prospective respondents return, having indicated their willingness to participate and the testing session they will attend.

With the mass testing format, implementers could be used to follow up with respondent contact and scheduling for any additional sessions needed to complete the sample. Or the format could incorporate implementers visiting prospective respondents after the initial contact letter has been sent to personally explain the project, answer questions, and sign up respondents for the testing sessions.

If it is more appropriate to use smaller testing sessions, i.e., during class periods or at separate places on campus, then corresponding arrangements and tasks will have to be set up to accommodate this format. Implementers may have to assume a bigger role in respondent contact and scheduling procedures.

Another important aspect of the testing procedures can be arranging a reward for respondents. Respondents are being asked to volunteer their time and to respond to a thought-provoking and complicated assessment technique. Once they learn how their participation can benefit them through possible changes in the environment, they will recognize the reward for participating in the long run. If the team can offer an immediate reward for participation, such as a free pass to a recreational

activity, this reinforces the process and hesitancies are more easily removed.

The team involves itself in these careful procedures in order to assure as close to a 100 percent response from the sample chosen. Questions of response bias (only certain kinds of students choosing to respond) must be dealt with when the response is below 100 percent. In practical terms, however, this will probably be a serious problem only when response falls below 85 percent of the sample. Careful and thorough planning in the on-campus applications of this model have yielded a response rate of close to 100 percent. Thus the team is advised to put efforts into procedures that will assure a high response rate in order to avoid having the interpretation of their results limited by questions of response bias.

Process

To set up its testing procedures, the team will need to:

1. Consider and choose the testing approach that will best accommodate its assessment technique and sample.
2. Locate and retain testing space.
3. Set up a method for contacting respondents.
4. Set up a method for scheduling respondents for the testing sessions.
5. Determine what role, if any, the implementers will need to assume in the contacting and scheduling of respondents.
6. Determine what reward, if any, the team can offer respondents. (Past planning teams have made arrangements and obtained free passes that respondents could use to attend a movie, game activity, or hobby session of their choice at the school's student union.)
7. Make appropriate assignments and schedule completion dates for the above tasks.

* * *

Communication with Key Personnel

Discussion

During Stage I, the originator of the ecosystem project communicated the idea for the project and gained support from appropriate administrators, key agency staff members, and faculty. Later, as the team worked through Stages II and III, its members maintained liaison with some of these constituents as well.

The beginning of Stage IV provides an excellent opportunity to again bring these persons up to date on the project. This is important, since administrators and agency staff will have to be involved in considering the data analysis and in planning and implementing design projects. In addition, the team may wish to include such persons as implementers for the project. For instance, if assessment is to be done during class periods, faculty who teach selected classes will have to be contacted and asked to cooperate with the project. This usually means gaining support from key academic administrators prior to contacting individual faculty members.

Process

To enhance communication with key constituents, the team needs to:

1. Decide which persons and groups should receive information on the process at this time.
2. Determine the way to present this information. Two methods commonly used are a talk between a team member and key constituent or a presentation to a group by one or more team members. Another method, especially appropriate for an agency staff that is central to the project, is to briefly explain the model and then have the staff do a limited simulation of the model on its own agency environment. For an example of this process, see Technical Appendix E, p. 121.
3. Determine which task or tasks each team member will assume in this process.

* * *

Recruitment and Training of Implementers

Discussion

Staff that work within the environment or students who could receive academic credit for work on the project are prime candidates to be implementers. The number of implementers the team will need is dependent upon the size of the sample and the testing procedures that have been chosen. A general rule is to have one implementer for every 50 respondents so that there will be adequate personnel to assist with the ER analysis. A testing procedure that uses a number of small testing sessions will require enough implementers to administer each session without overscheduling implementers. A few additional implementers should be recruited and trained as stand-bys in the event of last-minute absences.

Training of implementers will depend upon the number of tasks the team wants them to assume in addition to administering the assessment technique and assisting with the ER analysis. Training needs to be carefully outlined, materials to be used need to be prepared and ready for handout, and training sessions need to be scheduled appropriately in advance of the first task that the implementers will be expected to conduct. On the average, training of implementers takes six to eight hours and can be easily designed to fit into several meeting sessions. If the implementers will not be responsible for scoring ERs, the training time is considerably shortened.

It is advisable for each planning team member to assume leadership of a group of implementers along the lines of the concept of captain and team. This will help the planning team to coordinate implementer activities and provide implementers with a ready contact and information resource when needed.

Process/ Recruitment

To recruit implementers for the project's assessment and analysis, the team needs to:

1. Determine how many implementers will be necessary.
2. Determine whether students and/or faculty and staff should be recruited.
3. If students are to be recruited, contact probably will need to be made

with those faculty members who have students for whom work on the project could constitute credit as a practicum or independent study. Likely faculty members to contact would be those in sociology, psychology, and education departments.

4. A team member should have a meeting with the prospective students and their faculty members in order to describe the project and its innovative research features and to explain exactly what the implementers will be trained for and expected to do. Without this preparation, misunderstandings are likely to arise.
5. If faculty and staff are to serve as implementers, a meeting with them to explain the project and the benefits expected from it that could ease their workload will become instrumental in recruiting them. Or if a new staff is about to be selected, such as resident hall assistants or advisers, the implementer role should be incorporated into the job description so the new staff will know that they are expected to assist with the project.
6. Provide recruits with an assessment and analysis schedule and the times and places that training will be held.

Process/ Training

To design and give its training for implementers, the team or its member(s) responsible for training implementers may wish to review the basic training methodology given in Technical Appendix F, p. 127. Suggested guides for developing training sessions for implementers include:

1. Identification of each task the implementer will be expected to conduct.
2. The design of an appropriate training module for each task or group of tasks.
3. The incorporation of these modules into an overall format for the training schedule. (An example format for training ecosystem implementers is given in Technical Appendix G, p. 129.)
4. Prepare the needed training materials for each training sessions.
5. Implement the training schedule.

* * *

Project Publicity

Discussion

The implementation of its assessment is an opportune time for the team to seek publicity. Until now, the team has kept its immediate constituents apprised of its activities and has concentrated on planning. Now the team is ready to move into action and has its plans formed well enough to issue anticipatory statements about the project and its goals, all of which make good material for publicity.

The publicity is needed to make the general campus community aware of the project and prospective respondents aware that their participation will be valuable to the subsequent design of a better environment. This not only provides an assist for the assessment's upcoming implementation but also begins to lay the groundwork for the team's future design work.

The student newspaper and campus radio/television station, if such exist, are important channels for project publicity. With some suggestions and guidance from the team, a feature story or series of articles about the project, its intent, and its team members could easily be negotiated. Student service or departmental newsletters should also be tapped. If the environment has personnel who have not become directly involved with the project, then it is advisable to make a special effort to inform them about the project so they can be supportive rather than suspicious about the assessment.

Process

Suggestions that the team may find helpful in launching its project publicity include:

1. Identifying all the publicity resources that the team could tap.
2. Contacting these resources to request publicity for the project.
3. If requested, assisting with interview arrangements or preparing copy about the project.
4. If team members consider it desirable, requesting opportunity to review a source's publicity about the project before publication.

* * *

Respondent Contact and Scheduling

Discussion

The team should allow sufficient time before testing sessions in which to contact and schedule respondents. The initial contact needs to establish among prospective respondents an interest in participation. It should include a description of the project and its goals, as well as the amount of time the participation will involve and how important the respondent's participation is to the success of the project.

It is often advisable to leave time in the schedule for follow-up contacts with prospective respondents. The goal, obviously, is to sign up and test as many respondents as possible. Follow-up measures can reinforce the team's initial recruiting efforts. Contingency plans should also be made in the schedule for additional testing sessions in the event that attendance at scheduled testing sessions falls short of expectation.

If assessment is to take place during class periods, the team will have to decide whether to inform students about the project ahead of time or at the start of the class period. Greater participation will probably occur if students are informed at the start of the class period, when they are already present. However, implementers must be trained in how to handle a situation in which a student chooses not to participate in the assessment.

Process

Guidelines for making contact and scheduling prospective respondents include:

1. The initial contact, whether achieved by a personal one-to-one meeting, group meetings, or phone or letter campaign, should describe the project and emphasize the unique potential it holds for environmental designs that can better serve the respondents.
2. The initial contact should also include an explanation of how the respondent was selected, how much time will be involved, how participation might ultimately benefit respondents with an improved environment, and that results of the testing will be available to the participants. For example, an initial contact with prospective respondents

for an assessment of a residence hall environment might use an approach and content similar to this:

> The school is using a new approach to gather information about how students view their residence hall environment. The new approach involves learning what you like and dislike about your environment so we can design a better residence hall environment.
>
> Among the 4,500 students living in residence halls, a random sample of only 900 students has been chosen to participate in this innovative approach. You have been selected as one of these 900 students. The information you provide as a member of this sample group will remain anonymous. It will be used as background data for recommending changes in the environment that can better accommodate student needs.
>
> Obviously, your participation is crucial if we are to obtain sufficient information to plan the needed environmental designs. We hope you will be willing to take about 90 minutes of your time to supply us this information. Special questionnaires have been devised to help you give us your views on residence hall life. Your reward is a chance to make the school more aware of your changing needs and enable it to plan accordingly. The results of the questionnaire will be available to all who participate in the sample group.

3. The initial contact should conclude with notification about testing sessions and how to sign up for participation. Depending upon the team's scheduling procedures, this may involve instructions for completing and returning an enclosed postcard or information about a second contact by an implementer to answer questions and sign up respondents, or specify sign-up locations and times.
4. Implement scheduling procedures and employ team captains to coordinate and oversee any follow-up contacts used in these procedures.
5. Prepare and use procedures to follow up initial contacts, should first recruiting efforts fall short of the sample's desired number.

6. Prepare procedures and schedules for additional testing sessions in the event these become needed.

* * *

Assessment Testing Sessions

Discussion

The team's biggest job during the assessment testing sessions is to make certain all procedures are carried out according to schedule and that everything runs smoothly. If a team concept is used in conjunction with implementers, then much of the coordination of testing activities and a final review procedures can be handled through the implementers' team meetings. Either team captains or one planning team member should be on call during the actual testing periods to resolve any unforeseen problems that might occur.

Process

It is often helpful if the team develops a checklist of details that need to be attended to in connection with the testing sessions. This checklist might include items such as:

1. The correct quantity of instruments, answer sheets, and ER forms are ready for distribution to each testing session.
2. The testing place is properly equipped with everything necessary for taking the assessment, such as desks or tables, chairs, sufficient lighting, pencils, etc.
3. Any rewards the team has arranged to give respondents are ready and available for distribution.
4. Lists indicating which respondents are scheduled for which testing sessions are prepared and ready for distribution to implementers.
5. Each team member and/or implementer knows his or her assignments and schedules and has all materials needed for the testing session.
6. Assign and review back-up procedures for handling problems that might occur during testing periods.

7. The forms or scoring sheets which have been developed to facilitate the ER data analysis are ready for distribution.

* * *

Computer Analysis

In order to facilitate computer analysis of the instrument's data, the team will need to collect the instruments and answer forms when applicable from those who implemented the testing sessions and process the answer sheets for the computer center. The team member who has taken responsibility for liaison with the computer operators will need to keep in contact with their activities during this period.

* * *

Scoring and Analysis of ER Data

Discussion

While the phase one instrument's data is being scored on the computer, the team may choose to begin scoring and analyzing the ER data that has been collected. Team members often find the analysis of ER data provides a vivid description of the environment and that they can document those things which are appreciated and working well--to a degree even team members might not have suspected.

And while those things in the environment that are not appreciated or that are considered detrimental in the environment will receive as much emphasis, the impact is softened by concrete examples of what might be done to change or improve the condition. When other types of assessments uncover or substantiate undesirable conditions, they often leave an air of depression because no one is sure what to do about it. On the other hand, an ecosystem assessment is more often a positive experience because ideas for improving the environment are suggested. And many of these ideas will not require great effort or massive redesign to enact. This gives the team a sense of accomplishment about the assessment and builds enthusiasm for the model's last stage in which many of these ideas become reality and are in turn evaluated.

Process

To begin the ER data analysis, the team implements its procedures and methods for scoring the information provided by respondents on the assessment's ER form. If the analysis procedure given in Stage III is used, then the sequence of activity would include:

1. Implementers taking an ER item count on the ER forms they have collected from the testing sessions.
2. Meeting of implementers with team captains to turn in ER forms and accompanying ER item counts.
3. Meeting of the planning team to develop an ER item chart based on the ER item counts.
4. Meeting to select which ER items will receive an ER content analysis.
5. Meeting of team captains with implementers to assign and distribute the ER forms for items to be analyzed. Review of ER analysis procedures and analysis sheets on which to record the information.
6. Meeting of implementers with team captains to return ER forms and analysis sheets.
7. Review of implementers' analyses by team captains to make any additional comments they feel necessary.
8. Meeting of the planning team to review ER content analyses. A common occurrence at this point is for team members to take pertinent ER suggestions back to their parent services and departments for staff review and the implementation of suggestions readily accomplished. An ecosystem assessment can provide a number of ideas that can and should be readily acted upon.

* * *

Comparative Analysis of ER Form and Instrument Data

Discussion

When computer printouts on the instrument's data are received by the team, the team will have to spend some time deciding the most productive way to compare this information with the ER data. There will be some comparative analyses it will want to conduct and there will also be some comparative analyses that the individual services and departments represented on the team will want to conduct. The team will need to set up a schedule so that the data can be available for each purpose. In addition, the planning team will find that it often receives requests

for the data from other groups and offices on campus. The team will then be faced with some policy decisions on who else may have access to the data when and for what purposes. The goal is always to share the data as widely as possible, but the team must decide how best to share the data results so that it will not be misinterpreted.

When individual services and departments analyze the information, they will develop methods of analysis which best meet their needs. The team as a whole may wish to adopt one of these methods or devise its own. In any event there will be no scarcity of information to analyze. In fact, the team will need to set some parameters for its initial analyses. Setting parameters is essential so that the team can begin to make preliminary reports back to respondents, to the campus, and to those who sanctioned and endorsed the ecosystem project. Much time will have elapsed since the team first was established and started its work, so that it cannot afford to wait until a full and detailed analysis has been completed on each piece of data. It will be readily apparent that this could take months. While a full analysis would produce a mountain of fascinating material, it would ill serve both the model and the planning team because it would delay start on environmental designs that could be applied and tested while the environment's population remained relatively the same and could seriously diminish the project's level of continuing support.

This hazard can be overcome by addressing the analysis of data in cycles or phases. The first round of analysis should, if possible, result in designs that can be implemented and evaluated on the same population. A second round of analysis utilizing additional data can then be conducted and designs implemented. The planning team can pursue this approach as long as it believes that the analysis is useful and can document its value.

The assessment technique's provision for an importance measure is a good guide in setting parameters for the team's initial comparative analysis. The team can choose five to ten of those items that the respondents indicated were most important as the extent of items on which an initial comparative analysis will be conducted. Items of special importance to

individual team members and their constituents can be turned over to them for analysis. The information gathered through their efforts can then be fed back to the team. Meanwhile the team can concentrate its comparative analysis on those items that are most important to the respondents in preparation for environmental design and implementation.

Process

Guidelines helpful in conducting an initial comparative analyses of data would include:

1. The determination of items to receive comparative analysis for design purposes.
2. The establishment of policies for data use.
3. A schedule for data distribution to team member services and departments.
4. The formulation of a method to be used in the initial comparative analyses. Guidelines for an initial analysis might include the following:
   a. Compare phase one instrument data and ER content analysis for items chosen.
   b. Summarize this comparison.
   c. Compare this summary to data from the phase one instrument which deals with closely related items (same scale). If there has been an ER analysis of two or more items from the same scale, this information can also be summarized and compared.
5. Set a date for completion of the initial analysis.
6. Make assignments for the analysis of items. The team, as a whole, may want to conduct the analysis, in which case it is advisable to schedule which items will be analyzed at which meetings, or each team member may select a group of items to analyze.

* * *

Initial Report on Assessment

Discussion

Upon the completion of the data's initial analysis, the team needs to report its findings. This report can be qualified as preliminary to

indicate more analyses are to follow. But it is essential that the team's respondents and campus constituents begin to see results from their participation and support.

The initial report should highlight important findings that the analysis has revealed. It is also desirable to include examples of changes that individual services and departments have put into effect or are planning to put into effect as a result of the ER analysis. This can enhance the status and credibility of both the team and the represented services and departments. The report should also indicate that the team will now move into its design phase for these findings.

Process

In reporting on the findings on its initial analysis, the team can:

1. Write a formal report for distribution to appropriate administrators including, of course, those who initially gave commitment and support to the project. It should contain a brief description of how the assessment was set up and should explain the unique advantage of its ER format. The use of underlining key content in highlighting the assessment's findings is always helpful to the reader. Follow-up reports can deal with specific areas in more detail.
2. Release a brief news report to each department or service resource the team used to publicize the assessment.
3. Make arrangements with the student newspaper and campus radio/television station to do a follow-up story or feature on the assessment reporting its findings.
4. Meet with or prepare an appropriate communication for respondents and implementers about the assessment's findings.

The team now has the information necessary to initiate Stage V design of the environment. It has started cultivating a receptive audience for its suggested redesigns, as well, through its efforts to inform the respondents and constituents of the assessment's initial finding.

* * *

Stage V

Redesign and Evaluation

The team's primary goal in Stage V should be the implementation of at least one redesign project for the population that responded to the assessment and the evaluation of the design by members of that population. The tasks contained in Stage V are those that the team must accomplish to complete this initial work on an ecosystem project. Redesign projects are based on the assessment's data, take school values and goals into consideration, and can be multifaceted. The focus of redesign activity may be trained upon policy, programs, people, physical properties, or any combination of these. An integral part of environmental redesign is an evaluation of the design's results.

Through their design efforts, team members will deal first with the ecosystem model's step to fit environments to students. Then, through evaluation procedures, the team will deal with the model's steps to obtain a monitoring of and feedback on how successfully the design achieved its purpose. The evaluation can often recycle the model's step for measuring student perceptions as well.

Generally, the team's first task is to select which among the possible redesign projects have highest priority or potential. After redesign projects have been selected, the team will need to determine the strategies or methods necessary for their implementation. A master implementation schedule can then be drawn up that takes into consideration the methods to be used and when evaluation is expected to be completed. The team's concluding tasks in Stage V would then be implementing the scheduled design projects and conducting their evaluation. In most cases, both the implementation of projects and their evaluation will be conducted in stages with at least one project fully completed before the original assessment population can change significantly.

Stage V processes offer suggestions and guidelines for accomplishing the team's tasks in selecting, implementing, and evaluating redesign projects. If the team decides to follow up this initial work on the ecosystem model with further analysis of data and subsequent redesigns, it will learn even more about the model and how it might be used to achieve a greater degree of fit between environment and population.

Selecting Redesign Projects

Discussion

After completing its analysis on items of greatest importance to respondents, the team must decide which among the courses of action suggested in the ER data it can undertake to design. The development of programs will be a logical design response for some of the suggestions. The redesign of policies and accompanying rules and regulations will better suit other suggestions. Another major area for redesign might be adjustment in physical facilities. It is important for the team to identify several design projects for each category of suggestions being considered so that, as the feasibility of projects is considered, there are alternatives to use in the event one or another project proves to be impossible. It often makes sense to choose one or more redesigns that might be accomplished quickly, and one or more that would take more time and effort to implement.

Because there are a number of strategies and methods that the team can employ to accomplish its design goals, it is advised that only fiscal and major political considerations should act as restraints in the determination of which design projects are most feasible. In this manner, the environment takes precedence and design projects can be rank ordered according to their importance and/or their potential benefit. Those projects given highest priority and/or deemed to have greatest potential can then be selected for implementation.

Process

To select its redesign projects, the team should:

1. Brainstorm or use a similar process to identify possible projects that might be implemented in response to the suggestions that were analyzed in the team's first round of data analysis.
2. Use a field force analysis or similar process to determine the most feasible projects given the rich resource of inventive and skilled people on campus weighed against fiscal and major political constraints.
3. Rank order or otherwise determine a priority for each of the feasible projects.

4. Select as many high priority projects as deemed possible to implement, taking into consideration that the team as a whole does not have to be directly involved in the implementation of each project.

* * *

Determining Implementation Strategies and Methods

Discussion

The strategies and methods most suitable for implementing the team's selected high-priority projects should now be determined. There are many methods and strategies which can be employed to plan and implement designs. The team will need to review its high-priority projects from the standpoint of who can best effect the changes and then develop an appropriate strategy or method that the team can use to reach these people and get them involved in the redesign projects.

Obviously, the design projects that involve making changes in programs, policies, or physical conditions over which team members have direct authority can be designed and implemented by the team. Design projects that involve changes which could be accomplished by a team member's service, department, or agency might be set in motion by that team member. In this case the planning team's strategies could include activities such as consultation or technical assistance in support of the service's design project team. Or the planning team's strategy could be to launch that design project by offering some kind of workshop to familiarize the service's staff and team with the ecosystem model and environmental design.

A workshop is suggested as a primary strategy for initiating design projects that are best implemented by a service, agency, or department not represented on the planning team. A planning team member might then serve as special liaison to that service and procure the help of other planning team members when needed. A workshop is also suggested as a useful strategy to initiate design projects that are best implemented through the cooperative efforts of several services, agencies, or departments. In this instance, the team members would select and recruit participants in much the same manner as they themselves were selected and

recruited. Care should be taken to include representatives from among the design project's intended recipients. One goal of the workshop could then be the formulation of a planning team for the interservice design project. A member from the original ecosystem planning team would take part in the new team's activities for planning and implementing the design project. Other members of the original planning team could serve as consultants when needed.

Another strategy the planning team might use to initiate design projects not directly implemented by the team is that of consultation. This would entail offering the service that has undertaken a design project or those in authority to implement the design consultation concerning the ecosystem model, the team's project, accomplishments, and design suggestions as documented by the assessment's findings.

Whatever implementation strategy the team uses to initiate design projects, some of the projects may entail the development of new programs. When this is the case, the designers may wish to read Training Manual for Student Service Program Development, written by Marv Moore and Ursula Delworth. This model for program development has undergone thorough testing and refinement through a series of campus applications conducted by the Improving Mental Health Services on Western Campuses program at WICHE.*

Process

To help the team determine appropriate strategies for implementing design projects, the following guidelines are suggested:

1. Identify which high-priority projects are possible for the team itself to implement. Make a list of those that the team agrees to implement.
2. Identify which projects are best implemented by a member's service, agency, or department. Make a list of those agreed to be undertaken.
3. Identify and list those projects which are best implemented by other persons or groups not represented on the team.

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*The manual can be obtained free of charge from the Publications Unit, WICHE, P.O. Drawer P, Boulder, CO 80302.

4. Review the above lists of design projects and determine strategies for initiating their implementation. When strategies include workshop presentations, team members may want to review the workshop format for environmental design given on p. 131 of the Technical Appendix and the example of an ecosystem model simulation on p. 121 in preparation for designing their workshop.

* * *

Scheduling Design Projects

Discussion

After design projects have been selected and the team has determined what strategies or methods are suitable for each project's implementation, a schedule should be prepared. In making up this schedule, priority should be given to those design projects with implementation strategies that can be conducted and evaluated before the assessment's population significantly changes. Experience gained through on-campus application suggests that team-implemented design projects probably will offer the best opportunities for this to occur. Many design projects that might be planned and implemented by a team member's service, agency, or department can also have good potential for being initiated and evaluated before the population changes.

Whichever design projects the team feels confident can be completed in a relatively short time should be scheduled first and the dates noted for completion of the evaluation procedures. The other design projects can then be scheduled in accordance with their implementation strategies, and take such considerations into account as the best time to conduct a workshop or contact a group.

As design projects are scheduled, a team member should be assigned to implement or oversee the implementation of each. The team should schedule arrangements for publicity or other feedback mechanisms that can keep its constituents informed about design project activities. This will sustain interest and support for the ecosystem project and be helpful to the recruitment of respondents if any mass assessment procedures are incorporated into the team's evaluation plans.

In setting up a schedule for its design projects, the team should:

Process

1. Determine which designs projects could be implemented and evaluated before the assessment's population would change. Schedule these projects first and note dates for the completion of their evaluation procedures.
2. Schedule the remaining design projects in accordance with the time needed to prepare and conduct their implementation strategies.
3. Assign team members to oversee or implement each project.

* * *

Evaluating Design Projects

Discussion

The team's initial work on an ecosystem project concludes when evaluation procedures on the redesign projects that have been implemented for the assessment's population are complete. A further reading on the team's efforts will become available when evaluation results are in on the remaining design projects that were scheduled. Thus a full evaluation of the team's work is conducted in stages and comprises the results of evaluation data from all the projects implemented as a result of the initial data analysis.

As was the case in analyzing the assessment technique's data, the team again will need to establish analysis procedures for its redesign project evaluations. A form which easily displays the evaluation findings should be developed and distributed with a report on the team's conclusions after its first complete cycle of using the ecosystem model.

Suggested guidelines for planning evaluation include:

Process

1. Whenever a specific program is the result of a design project, that program should make provisions for and schedule its own evaluation procedures. (Program planners may find the evaluation and research design sections of the Training Manual for Student Service Program Development of help in setting up evaluation procedures.) Results

of the evaluation can then be forwarded to the planning team for inclusion in the project's overall evaluation report.

2. Whenever a policy change is the result of a design effort, the team should identify and gather appropriate statistics from any routinely collected data that could reflect the impact of the policy change.
3. Whenever a physical change is the result of a design project, a simple questionnaire could be developed on which people could report their reactions to the change.
4. The team may also wish to replicate those portions of the original assessment technique which cover the areas of redesign.
5. All evaluation procedures should be incorporated into the team's master schedule and team members assigned to oversee evaluation efforts. Obviously, those team members involved in design projects can oversee whatever evaluation procedures are applicable to these. If the team plans to replicate portions of the original assessment, this will necessitate a separate evaluation assignment.

* * *

Conclusion

If past experience is an indicator, the team will have found the model to be a successful tool for environmental design and the subsequent delivery of services to an environment's population. Most team members will be encouraged over the prospects of recycling Stages IV and V in order to make further environmental adjustments often focused on subgroups within the environment's population. And certainly after the first complete cycle of the ecosystem model, each team member will have acquired the skills necessary to apply the model to another environment. Thus they will have the additional reward and benefit of being able to take their knowledge back to their respective agencies or departments for application on a project pertinent to their concerns. In this manner the benefits of an ecosystem approach are multiplied throughout a campus.

* * *

TECHNICAL APPENDIXES

TECHNICAL APPENDIX A

GUIDELINES FOR AN ECOSYSTEM PROJECT REVIEW

The primary purpose of reviewing the proposed ecosystem project during the planning team's first formal meeting is to provide team members an overview on which they can begin to build common ideas, interpretations, and definitions. Suggested guidelines for preparing and presenting this review would include:

1. Keeping the review brief, certainly no more than 20 minutes--shorter if possible. (The sooner team members start taking part in the meeting, the sooner they will be able to begin working together.)
2. Highlighting what situations, data, perceptions, conditions, etc., initiated the idea to study the environment; what level and type of commitment has been given the project; and what the major goals for the study as represented by the team members are.
3. Discussing ecosystem theory. (This may be part of the project review or it may be left for later discussion. It is, however, a natural topic that will recur several times during a team's initial meetings. A key principle to remember when discussing ecosystem theory is that it addresses the environment as well as individuals by focusing upon the transactions that occur between people and their environment. In the past, student services have usually focused only on individuals, training them to cope with or helping them to adjust to their environments. The ecosystem model, by studying person-environment interactions, provides an important alternative--the adjustment or design of environments and aiding students to use these environments.)
4. Explaining the model's use of environmental referents. (This may also be part of the project review or postponed until it comes up in the natural course of discussion. The key principle to remember is that the environmental referent procedure goes beyond perceptions by asking the respondents to describe briefly what is happening to them in the environment that has produced their reaction to it. Analysis of these responses usually reveal common environmental referents which then can become targets for redesign.)

5. Stopping at appropriate intervals to get team members' questions and reactions, particularly if it seems necessary to have a lengthy project review.

* * *

TECHNICAL APPENDIX B

TEAM-BUILDING TECHNIQUES

Introductory Exercise for Team Members

Often, membership on an ecosystem planning team is the first time that people with diverse responsibilities and positions on campus have met or talked with each other. The following process offers a simple yet informative and interesting way for the planning team members to become acquainted. The planning team leader should:

1. Prepare to pair each team member with another he/she does not know.
2. Explain to team members that they will be paired off with another member and be given ten minutes to learn as much as possible about each other's background, interests, and job in order to introduce the colleague to the team.
3. Have team members join in assigned pairs and interview each other.
4. Reassemble the team after ten minutes and allow a few minutes for team members to prepare their colleague's introduction.
5. When everyone is ready, ask each team member in turn to introduce the colleague he/she interviewed.

Brainstorming Process

The purpose of this brainstorming process is to stimulate as many ideas as possible about a subject in a time-limited period and to deal with the ideas in an orderly manner. The process contains three steps--idea giving, idea review, and idea selection. In step one, a free flow of creative ideas is generated. In step two, these ideas are evaluated and otherwise screened for their potential usefulness; to assist their review, the ideas should be grouped or put into categories. In step three, the ideas having greatest potential are selected.

Process Preparations

1. Designate two people to record the ideas that will be offered by members of the group during the first step of the brainstorming process. Two people are

recommended because they can alternate the recording of ideas. (This maintains the flow of thoughts by reducing the number of requests to repeat an idea that can otherwise occur if one person tried to record all the ideas.)

2. Have a supply of paper and pencils or pens for the recorders.
3. Have a blackboard or large newsprint sheets and chalk or markers available for use in steps two and three, the review and selection of ideas.
4. Have a watch or clock with which to time the idea-producing session in the brainstorming process.

Process Directions

1. Formulate the subject to be brainstormed about into a question specific enough on which to focus everyone's thinking. When ideas for a broad topic are needed, use several idea-producing sessions and focus each to generate ideas about one aspect of the topic. For example, if the subject to be brainstormed about is learning skills that will be incorporated into a program, the topic could be considered in a series of sessions according to each category of students intended to participate or according to each type of ability the participants are expected to acquire.
2. Explain the purpose and procedures of brainstorming to the members of the group.
3. Practice an idea-producing session with a light or humorous topic such as, How could men's pants be improved? before using the technique on the actual subject matter.

Process Procedures

1. Each member of the group is to suggest as many ideas as possible in answer to the question. In giving ideas to the group, members should not be inhibited by issues of practicality or values. Rather, they should be free-wheeling in their suggestions because an outlandish idea can often contain the seeds for something that is unique and possible, or the idea can trigger another idea that is workable.
2. The triggering of ideas is common to the brainstorming technique. "Hitchhiking" on another member's idea with a related idea is encouraged.
3. Because the brainstorming process relies on all types of ideas, the making of judgmental or critical comments about suggested ideas should be confined to the review of ideas in step two and is prohibited during the idea-producing session in step one.

4. Each idea should be recorded but not the name of the member who suggested the idea. It may also be helpful for the group's leader to repeat each idea and indicate which recorder is to write it down. It would also be helpful if those recording take down only words that are key to the idea rather than every word.
5. Set a 10- or 15-minute limit for step one. However, the group may prefer a variation or modification on this time limit. Group members might choose to set a longer time period for idea giving or they may wish to brainstorm ideas for ten minutes, have these read back to them, and then go on with an additional ten minutes of idea giving.
6. Group the suggested ideas for review and decide which of them are most promising.
7. Based on group consensus, rank-order the most promising ideas to establish each idea's priority.
8. Select the ideas with greatest potential and high-ranking priority.

Field-Force Analysis

This term is applied to a number of similar formats which facilitate (1) decision making, or (2) decision implementation. It can be utilized by either individuals or groups.

The decision or possible decision is listed at the top of the page. Positive or "driving" forces or reasons are listed on one side of a center line, and negative or "restraining" forces on the other.

+	-
A.	A.
B.	B.
C.	C.

A number value or a general description (large, medium, small) is assigned to each force listed.

When a decision is to be made, the balance of the forces often argues powerfully in one direction or the other. When the decision has been tentatively made, the forces are studied to determine if they could be altered in support of the decision. The question is, Could we add <u>more</u> driving forces or do something to add weight to exist-

ing ones? Or, Could we reduce the number or weight of restraining forces? In a group, a brainstorming procedure is often useful in answering these questions. If it is possible to alter the forces, it may be more feasible to move ahead with a decision.

Example:

Tentative Decision: Offer a workshop on human sexuality to incoming freshmen.

Number Scale: 1 (small) -- 10 (large)

+		-
A. Data shows freshmen want this service (10)	→	← (8) A. Dean is worried about getting into this area
B. Upperclass students are interested in being co-trainers (7)	→	← (4) B. Difficult to find appropriate facilities
C. Several professionals are interested in being trainers (7)	→	← (3) C. Time consuming to develop and implement

It seems that the decision to offer the workshop is feasible. However, group members may want to see if they can devise a strategy to gain approval from the dean (the largest restraining force) before proceeding further. Otherwise, they may encounter continuing problems in implementing this program.

* * *

TECHNICAL APPENDIX C

PROCESSING TEAMWORK

Team Evaluation Procedure

A simple method for processing teamwork would be to close each meeting with an evaluative summary of the meeting. A brief form on which team members could reply to a set of evaluation questions might be drawn up and copied for distribution to the members, or the same questions could be asked and discussed orally. Whether written or discussed, some 15 to 20 minutes should be allotted to the procedure, and each team member's opinion should be obtained about:

1. The meeting's accomplishments
2. The meeting's frustrations
3. What should be done to improve meetings
4. What was most helpful during the meeting

This type of evaluation procedure can be easily adjusted so that regular evaluations can be made at less frequent intervals, e.g., every fourth meeting.

What to Look for in Groups*

In all human interactions there are two major ingredients--content and process. The first deals with the subject matter or the task upon which the group is working. In most interactions, the focus of attention of all persons is on the content. The second ingredient, process, is concerned with what is happening between and to group members while the group is working. Group process, or dynamics, deals with such items as morale, feeling, tone, atmosphere, influence, participation, styles of influence, leadership struggles, conflict, competition, cooperation, etc. In most interactions, very little attention is paid to process, even when it is the major cause of ineffec-

*This exercise is taken from J. William Pfeiffer and John E. Jones (eds.), The 1972 Annual Handbook For Group Facilitators, pp. 21-24. La Jolla, CA: University Associates, Inc., 1972, and is reprinted with their permission.

tive group action. Sensitivity to group process will better enable one to diagnose group problems early and deal with them more effectively. Since these processes are present in all groups, awareness of them will enhance a person's worth to a group and enable him to be a more effective group participant.

Below are some observation guidelines to help one process analyze group behavior.

Participation

One indication of involvement is verbal participation. Look for differences in the amount of participation among members.

1. Who are the high participators?
2. Who are the low participators?
3. Do you see any shift in participation, e.g., highs become quiet, lows suddenly become talkative. Do you see any possible reason for this in the group's interaction?
4. How are the silent people treated? How is their silence interpreted? Consent? Disagreement? Disinterest? Fear? etc.
5. Who talks to whom? Do you see any reason for this in the group's interactions?
6. Who keeps the ball rolling? Why? Do you see any reason for this in the group's interactions?

Influence

Influence and participation are not the same. Some people may speak very little, yet they capture the attention of the whole group. Others may talk a lot but are generally not listened to by other members.

7. Which members are high in influence? That is, when they talk others seem to listen.
8. Which members are low in influence? Others do not listen to or follow them. Is there any shifting in influence? Who shifts?
9. Do you see any rivalry in the group? Is there a struggle for leadership? What effect does it have on other group members?

Styles of Influence

Influence can take many forms. It can be positive or negative; it can enlist the support or cooperation of others or alienate them. *How* a person attempts to influence another may be the crucial factor in determining how open or closed the other

will be toward being influenced. Items 10 through 13 are suggestive of four styles that frequently emerge in groups.

10. Autocratic: Does anyone attempt to impose his will or values on other group members or try to push them to support his decisions? Who evaluates or passes judgment on other group members? Do any members block action when it is not moving in the direction they desire? Who pushes to "get the group organized?"
11. Peacemaker: Who eagerly supports other group members' decisions? Does anyone consistently try to avoid conflict or unpleasant feelings from being expressed by pouring oil on the troubled waters? Is any member typically deferential toward other group members--give them power? Do any members appear to avoid giving negative feedback, i.e., who will level only when they have positive feedback to give?
12. Laissez faire: Are any group members getting attention by their apparent lack of involvement in the group? Does any group member go along with group decisions without seeming to commit himself one way or the other? Who seems to be withdrawn and uninvolved; who does not initiate activity, participates mechanically and only in response to another member's question?
13. Democratic: Does anyone try to include everyone in a group decision or discussion? Who expresses his feelings and opinions openly and directly without evaluating or judging others? Who appears to be open to feedback and criticisms from others? When feelings run high and tension mounts, which members attempt to deal with the conflict in a problem-solving way?

Decision-Making Procedures

Many kinds of decisions are made in groups without considering the effects of these decisions on other members. Some people try to impose their own decisions on the group, while others want all members to participate and share in the decisions that are made.

14. Does anyone make a decision and carry it out without checking with other group members? (Self-authorized.) For example, he decides on the topic to be discussed and immediately begins to talk about it. What effect does this have on other group members?
15. Does the group drift from topic to topic? Who topic-jumps? Do you see any reason for this in the group's interactions?

16. Who supports other members' suggestions or decisions? Does this support result in the two members deciding the topic or activity for the group (handclasp)? How does this affect other group members?
17. Is there any evidence of a majority pushing a decision through over other members' objections? Do they call for a vote (majority support)?
18. Is there any attempt to get all members participating in a decision (consensus)? What effect does this seem to have on the group?
19. Does anyone make any contributions which do not receive any kind of response or recognition (plop)? What effect does this have on the member?

Task Functions

These functions illustrate behaviors that are concerned with getting the job done or accomplishing the task that the group has before it.

20. Does anyone ask for or make suggestions as to the best way to proceed or to tackle a problem?
21. Does anyone attempt to summarize what has been covered or what has been going on in the group?
22. Is there any giving or asking for facts, ideas, opinions, feelings, feedback, or searching for alternatives?
23. Who keeps the group on target? Who prevents topic-jumping or going off on tangents?

Maintenance Functions

These functions are important to the morale of the group. They maintain good and harmonious working relationships among the members and create a group atmosphere which enables each member to contribute maximally. They ensure smooth and effective teamwork within the group.

24. Who helps others get into the discussion (gate openers)?
25. Who cuts off others or interrupts them (gate closers)?
26. How well are members getting their ideas across? Are some members preoccupied and not listening? Are there any attempts by group members to help others clarify their ideas?
27. How are ideas rejected? How do members react when their ideas are not accepted? Do members attempt to support others when they reject their ideas?

Group Atmosphere

Something about the way a group works creates an atmosphere which in turn is revealed in a general impression. In addition, people may differ in the kind of atmosphere they like in a group. Insight can be gained into the atmosphere characteristic of a group by finding words which describe the general impressions held by group members.

28. Who seems to prefer a friendly congenial atmosphere? Is there any attempt to suppress conflict or unpleasant feelings?
29. Who seems to prefer an atmosphere of conflict and disagreement? Do any members provoke or annoy others?
30. Do people seem involved and interested? Is the atmosphere one of work, play, satisfaction, taking flight, sluggishness, etc.?

Membership

A major concern for group members is the degree of acceptance or inclusion in the group. Different patterns of interaction may develop in the group which give clues to the degree and kind of membership.

31. Is there any sub-grouping? Some times two or three members may consistently agree and support each other or consistently disagree and oppose one another.
32. Do some people seem to be "outside" the group? Do some members seem to be "in"? How are those "outside" treated?
33. Do some members move in and out of the group, e.g., lean forward or backward in their chairs or move their chairs in and out? Under what conditions do they come in or move out?

Feelings

During any group discussion, feelings are frequently generated by the interactions between members. These feelings, however, are seldom talked about. Observers may have to make guesses based on tone of voice, facial expressions, gestures, and many other forms of nonverbal cues.

34. What signs of feelings do you observe in group members: anger, irritation, frustration, warmth, affection, excitement, boredom, defensiveness, competitiveness, etc.?
35. Do you see any attempts by group members to block the expression of feelings, particularly negative feelings? How is this done? Does anyone do this consistently?

Norms

Standards or ground rules may develop in a group that control the behavior of its members. Norms usually express the beliefs or desires of the majority of the group members as to what behaviors *should* or *should not* take place in the group. These norms may be clear to all members (explicit), known or sensed by only a few (implicit), or operating completely below the level of awareness of any group members. Some norms facilitate group progress and some hinder it.

36. Are certain areas avoided in the group (e.g., sex, religion, talk about present feelings in group, discussing the leader's behavior, etc.)? Who seems to reinforce this avoidance? How do they do it?
37. Are group members overly nice or polite to each other? Are only positive feelings expressed? Do members agree with each other too readily? What happens when members disagree?
38. Do you see norms operating about participation or the kinds of questions that are allowed (e.g., "If I talk, you must talk"; "If I tell my problems you have to tell your problems")? Do members feel free to probe each other about their feelings? Do questions tend to be restricted to intellectual topics or events outside of the group?

Process Observation: A Guide*

Goals

I. To provide feedback to a group concerning its process.

II. To provide experience for group members in observing process variables in group meetings.

Materials

Copies of the Process Observation Report Form.

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*This exercise is taken from J. William Pfeiffer and John E. Jones (eds.), A Handbook of Structural Experiences for Human Relations Training, pp. 45-48, Vol. I (Rev.). La Jolla, CA: University Associates, Inc., 1974, and is reprinted with their permission.

Process

Participants take turns as process observers, a different observer for each meeting. The observer does not participate in the meeting but records his impressions on the Process Observation Report Form. At the end of the meeting, the observer makes an oral report of his observations, and his report is discussed. It is helpful for the first observer to have had some experience at such observation and for participants to have copies of the form while he is reporting.

Variations

I. Sections of the observation form can be assigned to different participants in advance of the meeting.

II. Two observers can be used instead of one, to check accuracy of observations.

III. The meeting can be videotaped, and the entire group can use the form to analyze the process.

IV. The observer can participate in the meeting while he is observing.

Similar Structured Experiences: Vol. I: Structured Experience 6; Vol. II: 37, 38, 39; Vol. III: 55; '72 Annual: 79; '73 Annual: 92.
Lecturette Source: '73 Annual: "A Model of Group Development."

Notes on the use of "Process Observation":

PROCESS OBSERVATION REPORT FORM

Group_____ Date_____

Interpersonal Communication Skills

1. Expressing (verbal and nonverbal)
2. Listening
3. Responding

Communication Pattern

4. Directionality (one-to-one, one-to-group, all through a leader)
5. Content (cognitive, affective)

Leadership

6. Major roles (record names of participants)

_____	Information-processor	_____	Follower
_____	Coordinator	_____	Blocker
_____	Evaluator	_____	Recognition-seeker
_____	Harmonizer	_____	Dominator
_____	Gatekeeper	_____	Avoider

7. Leadership style

_____ Democratic _____ Autocratic _____ Laissez-faire

8. Response to leadership style

_____	Eager participation	_____	Low commitment	_____	Resisting
_____	Lack of enthusiasm	_____	Holding back		

Climate

9. Feeling tone of the meeting
10. Cohesiveness

Goals

11. Explicitness
12. Commitment to agreed-upon goals

Situational Variables

13. Group size
14. Time limit
15. Physical facilities

Group Development

16. State of development
17. Rate of development

Observer Reaction

18. Feelings experienced during the observation
19. Feelings "here and now"
20. Hunches, speculations, and ideas about the process observed

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TECHNICAL APPENDIX D

ASSESSMENT INSTRUMENTS AND TECHNIQUES

Environmental Assessment Instruments-- An Aid for Campus Administrators

Lou Ann Keating

Improving Mental Health Services on Western Campuses
Western Interstate Commission for Higher Education
November 1974

Each of these instruments may prove helpful in assessment of campus environments. However, the experience of this program indicates that often it is necessary for campus personnel to design one or more of their own instruments in order to (1) obtain information specific to their campus, and (2) obtain information in a form which can be used in an environmental redesign process.

College and University Environment Scales (CUES), Second Edition

Author: C. Robert Pace

Publisher: Institutional Research Program for Higher Education
Educational Testing Service
Princeton, New Jersey 08540

Date: Copyright 1962, 1969

Cost: Specimen Set, $3.00
Technical Manual, $2.50
Booklets (reusable), $.35 each
Answer Sheets, $.05 each
Computer Printout Service, $.80 per answer sheet, scored
Combined Scoring Service, $1.00 per answer sheet, scored
$100 minimum charge for scoring the answer sheets included in one computer printout

Purpose: To aid in defining the atmosphere or intellectual-social-cultural climate of a college as students see it

Environment(s) Assessed: Total university

Target Population(s): Students who have been in attendance at least three semesters

Norm Group(s): 100 4-year institutions stratified according to geographic area, levels of program (B.A., M.A., Ph.D.), public versus private control, and proportionate to a national distribution of enrollments and institutions

Format: Student is asked to say whether each of 100 basic and 60 experimental statements is generally true or false with reference to his/her college. The 100 basic items form 5 scales of 20 items each. In addition, 2 special subscales have been created using items from the 5 basic scales: Campus Morale, and Quality of Teaching and Faculty-Student Relationships. The 5 major dimensions assessed are the student's views of the Practicality, sense of Community, Awareness, Prioriety, and Scholarship and/of their particular campus.

Administration: Paper and pencil questionnaire

Time Required for Completion: Approximately 30 minutes

Scoring: Key provided in the test manual, but hand scoring not practical. Computer printout with information regarding item, scale, and subscale responses or combined service (printout plus data cards) available from ETS (see Cost).

Interpretation: Internal focus on individual items or subscales within an institution or comparison of college or university's scores on items or scales with similar institutions across the country

Comparison of "real" and "ideal" responses to same items

Identification of disparities in stated institutional objectives and student perceptions of the environment

Statistics: Reliability estimates for subscales based on Cronbach coefficient alpha range from .89 to .94

CUES scores were correlated with various characteristics of students and institutions as represented by mean SAT-Verbal scores of entering freshmen and Astin's Intellectuality factor, among several others. The test manual provides detailed summaries.

* * *

College Student Questionnaire

Author: Richard E. Peterson

Publisher: Institutional Research Program for Higher Education
Educational Testing Service
Princeton, New Jersey 08540

Cost: Speciman Set, $3.00
CSQ Part I booklets (reusable), $.35 each
CSQ Part II booklets (reusable), $.35 each
CSQ Part I answer sheets, $.05 each
CSQ Part II answer sheets, $.05 each
CTAA booklets, $.15 each
Computer printout service (39-page report), $1.00 per answer sheet, scored
IBM Data Card Service (four cards per answer sheet, scored), $1.00 per answer sheet, scored
Combined Scoring Service (printout plus data cards), $1.00 per answer sheet, scored
Minimum $50.00 charge for each group of answer sheets, scored

Environment(s) Assessed: Attitudinal and biographical information about various student groups

Target Population(s): CSQ I: entering freshmen and transfer students
CSQ II: enrolled undergraduates

Norm Group(s): Information on norm groups available on printouts or by writing Educational Testing Service

Format: The student is asked to respond to 200 multiple-choice questions with the typical item having four possible responses.

Form CSQ I: for entering freshmen and transfer students is divided into 4 basic sections (Educational and Vocational Plans, Secondary School Information, Family Background, and Attitudes). Items are organized into 7 subscales, which with the exception of the Family Social Status scale, are composed of 10 items each (family independence, peer independence, liberalism, social conscience, cultural sophistication, motivation for grades, and family social status).

Form CSQ II: for enrolled undergraduates is divided into 3 basic sections (Educational and Vocational Plans, College Activities, and Attitudes) and 11 subscales composed of 10 items each (family independence, peer independence, liberalism, social conscience, cultural sophistication, satisfaction with faculty, satisfaction with administration, satisfaction with major, satisfaction with students, study habits, and extracurricular involvement.

CTAA: Control Test for Academic Aptitude is composed of 30 multiple-choice items (18 verbal and 12 mathematical) and was developed as an optional addition to either CSQ I or CSQ II to provide data for researchers who may wish to compare CSQ variables with a measure of academic aptitude.

Administration: Group administration
Paper and pencil questionnaire

Time Required for Completion: Approximately 90 minutes (includes time to review directions, grid ID information, respond to optional local items, etc.) CTAA is time limited to 12 minutes.

Scoring: (see Cost)

Interpretation: Purpose of the CSQ is to describe groups of students in the manner of survey research and public opinion polling. Results can be considered both from the standpoint of scale scores and individual items. CSQ may be utilized to describe student subgroups or in studies of student change, institutional impact, student satisfaction, etc.

Statistics: Internal consistency reliabilities for subscales range from .62 to .84 (1963 sampling) to .57 to .75 (1965 sampling)

Construct validity was checked by correlating scores on a given scale with some 47 other biographical and attitudinal characteristics and by comparing mean scores for selected subgroups of students and institutions. Detailed summaries are in the test manual.

* * *

The Gottesfeld Community Mental Health Critical Issues Test

Author: Harry Gottesfeld

Publisher: Behavioral Publications, Inc.
72 Fifth Avenue
New York, New York 10011

Date: Copyright 1974

Cost:

Purpose: To determine an individual or a group's standing on six major issues in the community mental health field

Environment(s) Assessed: Community mental health agencies

Target Population(s): Community mental health professionals (nurse, psychologist, social worker, psychiatrist) and paraprofessionals

Norm Group(s): 200 staff members of mental health agencies in the New York metropolitan area

Format: The mental health worker is asked to respond to 72 statements relating to community mental health on a 6 point scale ("strongly agree," "moderately agree," "slightly agree," "slightly disagree," "moderately disagree," or "strongly dis-

agree") and to 7 questions designed to gather information about the respondent's age, ethnic background, occupation, etc. There are 6 critical issues composed of 12 items each.

The 6 dimensions assessed are: (1) Community Context, work directly in the community, not from an institutional base; (2) Radicalism, rapid, drastic changes in community mental health centers needed; (3) Traditional Psychotherapy, model after private practice; (4) Prevention, approaches emphasizing crisis intervention, identification of incipient problems, and consultation with social agencies; (5) Extending the Definition of Mental Health, extending diagnosis and treatment of traditional diagnostic categories such as neurosis and psychosis to new areas for study and change such as racial discrimination, violence, and educational achievement; (6) Role Diffusion, professionals perform varied functions, and important mental health activities are carried out by people not in the mental health field.

Administration: Paper and pencil attitude scale

Time Required for Completion: Approximately 15 minutes

Scoring: Key provided in the test manual for hand scoring; electronic data processing for scoring the test and applying statistical tests available from Behavioral Publications

Interpretation: Dependent on nature of sample group and current issues in locale or institution

Development: Content developed from random sampling of statements in community mental health literature in 1967, 1968, 1969

Criterion measure established by comparing scores on the test with ratings of 200 respondents' attitudes as determined by their professional activities

Statistics: Internal consistency for all 6 issues ranging from .86 to .95

* * *

Institutional Functioning Inventory (IFI)

Author(s): Richard E. Peterson, John A. Centra, Rodney T. Hartnett, and Robert L. Linn

Publisher: Institutional Research Program for Higher Education
Educational Testing Service
Princeton, New Jersey 08540

Date: Copyright 1968 (instrument)
Copyright 1970 (preliminary technical manual)

Cost: For faculty, administrators, and other nonstudents: for students:

Computer Printout Service, $1.00 per answer sheet, scored	$ .90
Data Card Service, $1.00 per answer sheet, scored	$ .90
Combined Scoring Service, $1.00 per answer sheet, scored	$1.00

$50.00 minimum charge for scoring the answer sheets included in one printout or data card set
$3.00 per Specimen Set
Magnetic tape output also available on request

Purpose: To provide a means by which a college or university can describe itself in terms of a number of characteristics judged to be of importance in American higher education

Environment(s) Assessed: Total university

Target Population(s): Primarily for use with faculty; also appropriate for administrators and staff; students may complete the first half of IFI

Norm Group(s): 37 public and private colleges and universities selected to reflect U.S. 4-year colleges by geography, size, and level of offerings

Format: Subject is asked to respond to 132 multiple-choice items (students to 74), which are presented in four sections: Sections 1 and 3 require "yes," "no," or "don't know" responses; Sections 2 and 4 require "strongly agree," "agree," "disagree," or "strongly disagree" responses. Students respond to Sections 1 and 2 and faculty and appropriate others respond to Sections 3 and 4.

Instrument yields scores on 11 dimensions or scales, each composed of 12 items. Scales are Intellectual-Aesthetic Extracurriculum, Freedom, Human Diversity, Concern for Improvement of Society, Concern for Undergraduate Learning, Democratic Governance, Meeting Local Needs, Self-Study and Planning, Concern for Advancing Knowledge, Concern for Innovation, and Institutional Esprit.

Administration: Paper and pencil questionnaire

Time Required for Completion: Approximately 20 to 30 minutes

Scoring: Key provided in the test manual, but hand scoring not practical--see Cost for listing of available scoring options

Interpretation: May be used to focus on the perceptions of faculty, administrators, students, or to examine differences between the perceptions of various subgroups, or to monitor institutional change

Statistics: Internal consistency reliabilities based on group means range from .80 for Self-Study and Planning Scale to .96 for Democratic Governance an Concern for Advancing Knowledge scale for faculty. Range for students is .87 to .96 and for administrators .83 to .94. While factor analysis suggests the presence of only 4 factors, the authors have opted to retain the 11 subscales until further data are received.

* * *

Institutional Goals Inventory (IGI)

Author: Richard E. Peterson

Publisher: Institutional Research Program for Higher Education
Educational Testing Service
Princeton, New Jersey 08540

Date: Copyright 1972 (Note: Information listed in this summary is tentative because the technical manual was not available at time of publication.)

Cost: Booklet/Answer Sheet, $.35
Scoring and reporting service, $1.25 per booklet, scored
$200 minimum charge for scoring the booklets included in one report

Purpose: To help colleges and universities define their educational goals, establish priorities among those goals, and give direction to their present and future planning

Target Population(s): Subgroups within the academic community such as faculty, administrators, and students

Environment(s) Assessed: Total university

Norm Group(s): Some baseline information from a 1971 West Coast Pilot project involving 10 colleges available, but final norming not complete

Format: Subjects are asked to respond to 90 institutional goal statements on a 5-point scale ranging from "Of No Importance" to "Of Extremely High Importance," both as the goals exist on campus, "is," and as the subjects would like them to exist "should be." Space is also provided for response to 20 goal statements written locally.

Twenty subscales are organized into two broad dimensions:

Output Goal Areas	Process Goal Areas
1. Academic Development	1. Freedom
2. Intellectual Orientation	2. Democratic Governance
3. Individual/Personal Development	3. Community
4. Humanism/Altruism	4. Intellectual/Esthetic Environment
5. Cultural/Esthetic Awareness	5. Innovation
6. Traditional Religiousness	6. Off-Campus Learning
7. Vocational Preparation	7. Accountability/Efficiency
8. Advanced Training	
9. Research	
10. Meeting Local Needs	
11. Public Service	
12. Social Egalitarianism	
13. Social Criticism/Activism	

Administration: Paper and pencil questionnaire

Time Required for Completion: Approximately 45 minutes

Scoring: Machine scored by ETS; report includes 20 goal areas, 90 goal statements, and 20 local items summarized for both "is" and "should be" responses.

Interpretation: Possible focus or comparison of "is" and "should be" scores and profiles within or between groups, rank-ordering of goals, analysis of responses to individual items, or considering the size of discrepancies between "is" and "should be" scores within or between groups

Statistics: Preliminary expectations of item intercorrelations for a given scale of about .40 (internal consistency reliability). Moderate alpha probably due to small number of items in the scale. Final statistical information not available.

* * *

Inventory of College Activities (ICA)

Author: Alexander W. Astin

Publisher: National Computer Systems
Survey Research Services
4401 West 76th Street
Minneapolis, Minnesota 55435

Date:

Cost: Booklets: packages of 25 @ $3.00
Tape or punch card records of item responses for individuals @ $.08 each, plus shipping cost and cost of tapes

Purpose: To describe and measure some of the important differences among the environments of undergraduate institutions

Target Population(s): Although designed primarily to be completed by undergraduates, most items are also applicable to graduate students

Environment(s) Assessed: Total university

Norm Group(s): ICA profile information obtained from 1967 stratified samples of 34,693 students at 246 two- and four-year institutions

Format: Students are asked to respond to 16 questions designed to gather general information about their history, career goals, and college experiences, and to 4 questions which require student evaluation of their college's atmosphere. Option provided for 18 locally written items with up to 10 responses each.

Information was initially organized into 4 major categories (peer, classroom, administrative, and physical environments) with factor analyses yielding 33 dimensions: competitiveness versus cooperativeness, organized dating, inde-

pendence, cohesiveness, informal dating, femininity, drinking versus religiousness, musical and artistic activity, leisure time, career indecision, regularity of sleeping habits, use of the library, conflict with regulations, student employment, use of automobiles, involvement in the class, verbal aggressiveness, extraversion of instructor, familiarity with instructor, organization in the classroom, severity of grading, severity of administrative policy against the following: drinking, heterosexual activity, aggression, cheating, academic competitiveness, concern for the individual student, school spirit, permissiveness, snobbishness, emphasis on athletics, flexibility of the curriculum, and emphasis on social life.

Administration: Paper and pencil questionnaire

Time Required for Completion: Approximately 20 to 25 minutes

Scoring: National Computer Systems
4401 West 76th Street
Minneapolis, Minnesota 55435

Scores provided on 33 ICA dimensions and up to 99 subgroups of respondents; punch tape or IBM cards of respondent's answers to individual items also available

Interpretation: Focus on individual items or dimensions within an institution or on comparisons with national norms on major dimensions

Statistics: Reliability: Spearman-Brown split-half intercorrelations of 33 dimensions range from .850 to .950+, with median corrected reliability coefficient of .931

Validity: ICA factors were correlated with 10 continuous measures at the college environment (including the 8 Astin and Holland Environmental Assessment Technique variables), with the College and University Environment Scales (CUES) and with 10 different typological characteristics of institutions. Details of studies provided in the test manual.

* * *

Student Orientations Survey - Form D

Author(s): B. R. Morstain and R. M. Gray

Publisher: Office of Academic Planning and Evaluation
University of Delaware
Newark, Delaware 19711

Date: Copyright 1971, 1973

Cost: SOS inventory, scoring, and computer report (two copies of total group analysis), per individual, $.50; minimum charge, $30.00
Manual, $2.50
Other comparative group analyses based on questions listed in the General Information section and/or by student responses to the two additional questions developed for particular group needs, $5.00 each

Purpose: To assess the expressed attitudes of students toward various philosophies, processes, and purposes of a college education; to assess students' expressed attitudes regarding curricular-instructional policies, their views on preferred modes of learning, student-faculty roles, etc.

Environment(s) Assessed: Total university

Target Population(s): Undergraduate students

Norm Group(s): 3,838 students in 5 institutions (Concordia College, Harcum Junior College, Muhlenberg College, Steubenville College, and University of Delaware

Format: The student is asked to respond to 80 statements expressing a variety of attitudes toward education, and to 5 questions designed to gather information about the students (year in school, major, living arrangements, sex, and type of institution). Response to the statements is on a 4-point scale ("not at all like my attitude," "not very much like my attitude," "reflects my attitude somewhat," "closely reflects my attitude").

There are 10 subscales composed of 8 items each which are organized into 5 major dimensions: (1) Purpose (Achievement and Inquiry subscales), (2) Process (Assignment Learning and Independent Study subscales), (3) Power (Assessment and Interaction subscales), (4) Peer Relations (Affiliation and Informal Association subscales), (5) Public Position (Affirmation and Involvement subscales). In addition, 5 of the scales cluster as a general *Preparatory Orientation* to college (Achievement, Assignment Learning, Assessment, Affiliation, and Affirmation) and 5 cluster as a general *Exploratory Orientation* to college (Inquiry, Independent Study, Interaction, Informal Association, and Involvement).

Administration: Paper and pencil questionnaire

Time Required for Completion: Approximately 15 minutes

Scoring: General information as to scoring procedure is provided, but hand scoring is not practical; machine scoring, computer reports, profiles and data decks provided as part of package cost of instrument

Interpretation: Focus on relationships between student attitudes and (1) personality characteristics, (2) measure of aptitude, (3) major or curriculum choice, (4) family or ethnic background, living arrangements, etc., and (5) academic achievement

Focus on the question of institutional "impact" (through longitudinal designs)

Statistics: Internal consistency (coefficient alpha for 10 subscales ranging from .64 to .84)

Subscale intercorrelations (Pearson product-moment) tend to show moderate correlations within the Preparatory cluster (.24 to .58), a wide range within the Exploratory cluster (.01 to .56), and a wide range of negative correlations between clusters (-.01 to -.55).

SOS scale scores were correlated with scores on the Omnibus Personality Inventory, 4 Clark-Trow typologies, SAT Verbal and Math scores, and other data regarding students in different institutional settings or curricular areas. Studies cited seem to indicate significant relationships between SOS measures of educational orientations of attitudes and instruments or classifications listed above. Manual provides detailed summaries.

* * *

Student Reactions to College

Author(s): Jonathan R. Warren and Pamela J. Roelfs

Publisher: Institutional Research Program for Higher Education
Educational Testing Service
Princeton, New Jersey 08540

Date: Copyright 1973

Cost:

Purpose: To provide a vehicle through which students can provide administrators and faculty with information to be used in planning and revising educational programs and services

Environment(s) Assessed: Total environment of community and junior college

Target Population(s): Community and junior college students with a minimum of one term's experience at the college

Norm Group(s): Instrument designed to be used for local decision-making versus comparison against national standards; preliminary form was administered to approximately 6,500 students in 27 two-year colleges

Format: Students are asked to answer 14 classification items and to react to 171 statements about some aspect of their college life. Response alternatives range in number from 3 ("no," "yes once," "yes twice or more"), to 4 ("almost never" to "almost always") to 5 ("definitely not" to "definitely yes"). Option available for up to 20 locally written items.

Items can be considered separately or organized into the following factored item subgroups: quality of instruction, student-centered instruction, academic

performance, studying problems, instructor accessibility, involvement with faculty and staff, certainty of plans, active involvement in planning, programming problems, problems of registration and scheduling, administrative control of students, anger toward the administration, desire for help with living problems, financial and related problems.

Administration: Paper and pencil questionnaire

Time Required for Completion: 30 to 45 minutes

Scoring: Machine-scoring available through ETS

Interpretation: Possible focus on identifying program areas needing attention, needs of particular student groups, exemplary programs or services, documenting support for program changes, extent of student satisfaction/dissatisfaction, providing information for college planning

Statistics: Efforts were made to establish indicator of reliability by comparing samples within and across colleges, but no coefficients were produced

* * *

University Residence Environment Scale

Author(s): Rudolph M. Moos, Marvin S. Gerst

Publisher: Social Ecology Laboratory
Department of Psychiatry
Stanford University
Veterans Administration Hospital
Stanford, California 94305

Date: Copyright 1969, 1971

Cost:

Purpose: To assess the social climates of university living groups such as dormitories, sororities, and fraternities

Environment(s) Assessed: Residence halls, Greek houses, and religious or other special-interest groups

Target Population(s): Residents and staff members of university student living groups

Norm Group(s): 168 living units located in 16 public and private college and universities--wide variety of living arrangements included

Format: Student or staff member is asked to respond to statements designed to identify characteristics of the living environment which exert a "press" toward 1 of 10

measures (subscales) of social climate. Each of the subscales is represented by 9 or 10 items on the instrument (except for Form S which is composed of 4 items per subscale).

The 10 measures are organized into 3 major dimensions: (1) Relationship (Involvement and Support subscales); (2) Personal Growth or Development (Independence, Traditional Social Orientation, Competition, Academic Achievement, and Intellectuality subscales); (3) System Maintenance and System Change (Order and Organization, Student Influence, and Innovation subscales).

Form R2 (Real Form) - 96 statements to which student responds "true" or "false" for his/her living unit
Form E (Expectation Form) - Parallel to Real Form with statements rewritten to elicit student expectation of living environment
Form I (Ideal Form) - Parallel to Real Form with statements rewritten to elicit student's ideal conception of living environment
Form S (Short Form) - Composed of 4 representative items from each subscale of Real Form--yields results similar to Form R2

Administration: Written--paper and pencil questionnaire
Oral--tape-recorded instructions and questions with IBM answer sheets

Time Required for Completion: Forms R2, I, and E--approximately 20 minutes
Form S--approximately 10 minutes

Scoring: Key provided in manual for hand scoring

Interpretation: Possible focus on individual subscales, comparisons over time, comparisons among living units, or comparison between forms

Development: From item analysis of 238 items on initial Form R administered in 13 residence halls and 140 items on secondary Form R2

Statistics: Individual test-retest reliabilities ranging from .59 to .74 (after one month) and pooled test-retest reliabilities range from .86 to .98 (after one month)

* * *

Environmental Assessment Techniques*

Sue Hyne, compiler

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Introduction

Techniques for the assessment of institutional-environmental variables are not as well developed as the personality measures used with individuals. Although the two procedures may be roughly analogous, the major focus of environmental assessment to date has been on classifying and/or differentiating institutions rather than on studying the unique features of a single institution, as is the case in individual personality assessment. Baird (1971), in categorizing the types of information yielded from college environmental measures, noted that "more attention has been devoted to gathering general knowledge than to developing measure of high utility" in campus decision making. Assessment of intra-institutional variables rather than inter-institutional variables conceivably would be more useful in outreach programming. Accordingly, Baird concluded that:

> researchers and test developers need to be more concerned about the possible uses to which their instruments might be put, and should try to develop instruments and information systems that could be the basis for individual and institutional decisions. [P. 85]

Baird's contention is crucial in highlighting the research that needs to be done to create a viable means of basing counseling programs on informative institutional-environmental data. Much of the preliminary background work has already been carried out. The American Council on Education's input-output model has identified relevant factors to be assessed. Methods and instruments have been devised to measure some of these student and environmental variables, and steps in the assessment process have been outlined (Kaiser, 1972; Menne, 1967). The integration and further refinement of

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*This material is adapted from a research grant application, "Institutional Assessment and Counseling Outreach," submitted to NIMH, with Weston H. Morrill, principal investigator. This material also constituted a portion of a master's thesis, "Institutional Assessment in Outreach Counseling: A Comparison of Two Techniques," by Sue Hyne, Colorado State University, June 1973. (This handout revised August 1973.)

these contributions is one objective of this study. A further review and critique of the most crucial components in this process--the environmental assessment methodologies--follows.

A brief survey of techniques designed to assess environmental variables gives an indication of the approaches currently used. Environmental assessment techniques can be classified under four major approaches--demographic, perceptual, behavioral (Menne, 1967), and multimethod. Many of the instruments and techniques mentioned conceivably could be placed in more than one category, as they contain elements of each approach. However, generally they are classified in the grouping that reflects their major emphasis of approach. Many more instruments exist than are reported here; for example, many were developed for local use on a single campus. Some of the environmental assessment techniques listed have been published for widespread use; others are primarily research instruments with limited application to date. Although these instruments and techniques have been developed for diverse purposes, some could probably be successfully adapted for use in outreach programming. However, several issues must be explored before such adaptation can be most profitably applied.

Demographic Approach to Environmental Assessment

Demographic variables such as institutional size, ability level of students, or number of faculty members may be combined in the descriptive analysis of college environments. Demographic measures have the advantage of verifiable, readily available information as a data base, thus facilitating widespread comparative collegiate research. Demographic variables such as class size can also be more amenable to direct manipulation when efforts to alter the university environment are initiated.

Interpretation of scales derived from this process may be rather arbitrary, however. In addition, it is difficult to identify specifically the sources of impact within the university or college that result in different environments. Demographic measures tend to remain remarkably stable over long periods of time and thus may not reflect environmental changes that have occurred. For example, test-retest reliabilities of five of the six personal orientations of Astin and Holland's (1961) Environmental Assessment Technique for a six-year interval ranged from .80 to .97. Such high reliability may mask significant changes in the environment.

The demographic technique, therefore, is largely a descriptive approach with limited applications for outreach programming. Supplementary demographic information might be used, however, to augment and clarify the results from other types of assessment.

1. Factor analysis of demographic variables (Astin, 1962; Richards, Rand, and Rand, 1965)
2. Environmental Assessment Technique (EAT) (Astin, 1963; Astin and Holland, 1961)

Perceptual Approach to Environmental Assessment

The assessment of college or university environments using a perceptual approach usually involves responses to a series of descriptive statements that yield a global "picture" of the institution in terms of derived scales or factors. The perceptions of various groups--students, faculty members, administrators, parents, counselors, admissions officers, counseling psychologists--may be compared (Berdie, 1967; Brown, 1970; Butler, 1968; Donato and Fox, 1970; Fox, 1971; Guilliams and Dollar, 1972; Riley, 1970; Seymour, 1968). By modifying instructions for administration, perceptions of the "expected," "actual," or "ideal" environment may be elicited (Lauterbach and Vielhaber, 1966; Standing and Parker, 1964). In addition, a cross-sectional or a longitudinal format may be used in studying trends over time (Johnson and Kurpius, 1967).

Perceptual measures have been used frequently in environmental assessment and have several unique advantages. These measures are quite sensitive to environmental change, and results are easier to interpret and understand. Centra (1970) has contended that perceptual measures are less sensitive to individual student differences than behavioral measures, and that representative sampling may not be as crucial as a prerequisite to obtaining a valid portrayal of the institution. In addition, several of these instruments have been published, are readily available, and have demonstrated psychometric adequacy.

Perceptual measures, however, may only reflect the "perceived environment" and not necessarily the actual environment. Students' reports may be biased or inaccurate due to an "image lag" (Centra, 1968), a selected and limited perspective (Austin, 1970) or a tendency to "overrate the institution (Centra, 1968).

Pace (1969) countered some of these criticisms:

> The assumed validity of the collective perception approach lies in the argument that "fifty million Frenchmen can't be wrong." Regardless of individual behavior, or assorted physical facts such as money or size, the environment, in a psychological sense, is what it is perceived to be by the people who live in it. Even if one grants the possibility of self-deception on a large scale, the perceived reality, whatever it is, influences one's behavior and response. Thus, realistically, what people think is true is true for them. [P. 7]

The interaction between personality variables and response to a perceptual measure has to be fully delineated before we can be certain that environmental factors, and not

the personality characteristics of the respondents, are being assessed. In addition, most perceptual measures do not generally provide direct cues to the sources of impact or press within the environment.

The perceptual approach to environmental assessment is the best developed and most widely used technique available presently. Additional research using the perceptual approach should prove useful in outreach programming.

1. College Characteristic Index (CCI) (Pace and Stern, 1958)
2. College and University Environment Scales (CUES) (Pace, 1969)
3. College Characteristics Analysis (CCA) (Pace, 1964; Pace and Baird, 1966)
4. Institutional Functioning Inventory (IFI) (Peterson and others, 1970)
5. Transactional Analysis of Personality and Environment (TAPE) (Pervin, 1967)
6. College Student Satisfaction Questionnaire (CSSQ) (Starr, Betz, and Menne, 1971)
7. University Residence Environment Scale (URES) (Gerst and Moos, n.d.)
8. Campus Environment Scale (CES) (Kansas City Regional Council for Higher Education, 1969)

Behavioral Approach to Environmental Assessment

Specific observable student behaviors may also be studied as a guide to assessing institutional climate or environment. Behavioral measures can provide a more accurate and detailed account of activities within a university setting and can point to specific areas for institutional interventions. They also have the advantage of pinpointing issues specific to a particular campus that may inadvertently be missed by demographic or perceptual approaches. Chickering (1972, p. 142) also observed that "data concerning the daily activities and experiences of students provide more immediately useful and powerful information for program planners and decision makers."

Centra (1970) emphasized that:

> When students are reporting their own behavior or interests, a representative sample of students from each institution is especially crucial. Only then does an institution's score represent an average of all kinds of students at a college. [P. 5]

At the present time, this approach is not well developed and should be an area of focus for further research. Suitable instruments for behavior assessment could make a significant contribution to the assessment of university environments in outreach programming.

1. Inventory of College Activities (ICA) (Astin, 1971a; 1971b)
2. Experience of College Questionnaire (ECQ) (McDowell and Chickering, 1967)

3. Unstructured Student Interviews (Bloom, 1971; Carruth and Comer, 1972)
4. Participant-Observer Debriefings (Eddy, 1959; Kennedy and Danskin, 1968)

Multimethod Approach to Environmental Assessment

Additional assessment techniques combine the demographic, perceptual, and behavioral approaches in an attempt to gather a variety of relevant information in a single effort.

1. College Student Questionnaire (CSQ) (Peterson, 1968)
2. Questionnaire on Student and College Characteristics (QSCC) (Centra, 1970)
3. Anthropological Vignette (Riesman and Jencks, 1962)
4. Data Banks (Astin, 1967; Institutional Self-Study Service Announcement, 1972)

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APPENDIX E

AN EXAMPLE SIMULATION OF AN ECOSYSTEM PROJECT FOR COUNSELING CENTER PERSONNEL*

This appendix provides a brief description of a one-day workshop for a counseling center staff, which was designed to both teach about ecosystem methodology and to obtain support for an ecosystem project. While the staff had been included in the earlier discussion about the project, only two members of the staff had been involved with the planning team. As a result, most of the staff did not feel any identification with the project. In addition, there was evidence, from the absence of staff response to requests for input about the project, that there may have been negative reaction or divisiveness on that staff that led to lack of support for the project.

The workshop was divided into two major segments. The first was primarly didactic, covering the theories and models underlying the ecosystem concept. The second segment was primarily experiential, providing the staff with an actual experience of conducting a mini-ecosystem project.

Theory

During the didactic or theory session, three different models or perspectives were presented and integrated. The first of these was based on a 1971 article in The Counseling Psychologist entitled, "A Preventative and Developmental Role for the College Counselor" (Morrill and Hurst, 1971). This paper stresses the interaction of both the individual and the environment as variables that influence the outcome of college. Thus, to affect the outcomes of college it is important to study the environment and modify it as well as to counsel or help students adjust to the environment. The second model that was presented was the "Cube" model which identifies alternate targets, purposes, and methods for counseling center interventions (Morrill, Oetting, and Hurst, 1974). The third model was based on the WICHE publication entitled "The Ecosystem Model: Designing Campus Environments" (1973) and on an article in The Personnel and

*The Example Simulation was written by Weston H. Morrill, Department of Psychology, Colorado State University, and is based on a workshop he prepared and conducted in conjunction with an on-campus model application.

Guidance Journal by Banning and Kaiser (1974). It notes the importance of the "transaction between the student and his or her environment" (p. 371) and suggests that the goal of student personnel should not focus on adjusting people alone, but also on adjusting environments. Banning and Kaiser described a seven-stage ecosystem design process which is useful in conceptualizing this ecosystem model.

Experience

The remainder of the workshop involved the participants in carrying out an actual ecosystem project. The environment that they studied was that of the counseling center in which they all work. This portion of the workshop involved three major activities. These were (1) development of an instrument to measure the environment; (2) the collection and summarization of data about the environment using the instrument; and (3) action planning, based on the obtained data, designed to bring about changes to make the environment more compatible with members' needs and goals.

Development of an Instrument. The first step in the development of an instrument was the presentation of an item format to be used in this mini experience. Each participant was provided with copies of the item format presented in Figure I. This format, adapted from the Institutional Goals Inventory, is only one of a number of possible formats. It was chosen because the format provides information about how important a goal is, how well the center is achieving a goal, and about the discrepancy between the two.

Figure I. The Item Format for the Ecosystem Instrument.

Directions: For each of the goal statements you are to make two ratings. First, how important does the goal seem to be in actual practice as you experience working in the counseling center? Mark this rating on the "is" row. Second, how important do you think the goal should be? Mark this rating on the "should be" row.

Goal	Of Extremely High Importance	Of High Importance	Of Medium Importance	Of Low Importance	Of No Importance
is	☐	☐	☐	☐	☐
should be	☐	☐	☐	☐	☐

Each of the participants was asked to write ten goal statements to be used as potential items for the ecosystem instrument. They were given examples of goal statements and asked to write five of the goal statements as output goals and five as support goals. Output goals were defined as those goals of the counseling center that were task oriented. These had to do with the mission or purpose for the existence of the center. The support goals were defined as those goals that were internal to the counseling center and had to do with the maintenance of a climate that fostered the achievement of the output or task goals. These support or maintenance goals deal with such concepts as freedom, governance, feelings of community, interpersonal relationships, support, intellectual stimulation, etc.

During a break, the approximately 100 goal statements that were written by the staff were sorted into several piles based on similarity of concept. The entire staff then participated in the selection of a small number of items to be used in the actual instrument. Eleven items were selected for inclusion in the final instrument. These items clearly represented those areas that were of the most concern to members of the staff. As a result, the actual items that were selected were those on which a maximum discrepancy would exist. The following are examples of the type of items that were written:

- To establish an advising center to meet the advising and record needs of all students. (Output goal)
- To provide complete and accurate information to students regarding class selection. (Output goal)
- To feel support from colleagues and supervisors. (Support goal)
- To have more time available for professional growth as a staff (inservice together). (Support goal)
- To have a counseling center environment that is conducive to enjoyable and caring work relationships. (Support goal)

Collection and Summarization of the Data. Once the staff had selected the items that they thought had the highest priority for them at that time, the resulting instrument was read. Staff members wrote down their responses in two ways to each of the selected goal statements. First, they indicated how important the goal seemed to be in actual practice as experienced at the counseling center. Then they rated how important they thought that the goal should be (see Figure I). Once this task had been completed for all of the items, the staff members were given instructions to obtain environmental referents. The instructions were as follows:

Identify those items on which there is a difference of two or more spaces between your "is" and "should be" responses. For each of the items where the discrepancy is two or more, answer the following two questions: (1) Why do you think this discrepancy exists, and (2) What do you think could be done to reduce the discrepancy? Be as specific as possible.

While the staff members were writing their environmental referents, the answer sheets for the objective portion of the questionnaire were collected and the results summarized. Table I presents the summary of the results of the questionnaire. It should be pointed out that, during the workshop, there was only enough time to compute the mean discrepancy scores. This provided the information that was needed for the identification of those items on which there was the greatest discrepancy.

Table I. Summary of Staff Responses to Workshop Ecosystem Instrument (N=11).

Item No.	Mean "is"	Mean "should be"	Mean Discrepancy
1	2.54	4.72	2.18
2	2.27	4.90	2.63
3	2.90	4.54	1.81
4	2.81	4.09	1.27
5	2.18	4.90	2.72
6	2.09	4.18	2.09
7	2.90	4.36	1.45
8	2.63	4.27	1.63
9	2.36	4.81	2.27
10	2.63	4.27	1.63
11	2.45	4.81	2.36

Action Planning. During the action planning stage of the workshop, the staff read those items on which they had the greatest discrepancy and selected one item on which to plan an intervention to reduce the discrepancy. It was for this process that the environmental referents were necessary.

The first step of the action planning was to define the problem as completely as possible. This was accomplished by reading all of the environmental referents that had been given in response to the question, Why do you think this discrepancy exists?

After these had been read, the group spent time discussing the problem area and defining and clarifying the causes of the "is/should be" discrepancy.

Once the problem had been sufficiently defined, the next task was to identify possible courses of action to improve the situation. The initial process was to read all of the environmental referents given in response to the question, What do you think could be done to reduce this discrepancy? Once this had been accomplished, the staff discussed alternate intervention approaches.* The intervention chosen was based on some assessment of the feasibility of the intervention and its potential effectiveness. This cost/benefit consideration is important in any intervention planning. Also, in order to ensure follow-through, it was crucial that the action planning be detailed and specific in terms of what was to be done, who was to do it, when it was to be done, and what other resources were necessary to accomplish the intervention.

As a result of this workshop, the staff expressed a much greater understanding of the ecosystem process and developed a plan to begin helping themselves improve their counseling center environment.

References

Banning, J. H., and Kaiser, L. An ecological perspective and model for campus design. The Personnel and Guidance Journal, 1974, 52, 370-375.

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*A useful process would be to use the "Cube" model (Morrill, Oetting, and Hurst, (1974) and have the staff brainstorm as many intervention methodologies as possible by considering alternative targets, purposes, and methods.

APPENDIX F

BEHAVIOR CHANGE TRAINING METHODOLOGY*

A behavior change training model is presented below in two parts. First, the five steps of the behavior change training model are explained. Then, these steps are illustrated through a specific training procedure from The Student Couples' Seminar: A Leader's Manual.

The five steps in the behavior change training model are:

1. EXPLAIN to those being trained the objectives of your training procedure and exactly what the training procedure entails. That is, tell what you intend to do and why.
2. DEMONSTRATE the training procedure so that the trainees can observe the desired behavior change being reached. This may be accomplished by either of two means: a lecture presentation full of clear examples or an audiovisual model of the behavior change objective effectively being achieved. Either way, the effect is to take the trainees through the training process via ample illustrations.
3. PRACTICE provides the trainees with an opportunity to implement the behavior change objective being taught by role playing their behavior change and/or to practice the behavior change with actual persons or situations toward which the change is directed.
4. PERFORMANCE FEEDBACK occurs in both role playing and actual practice: the FEEDBACK about how well a trainee has PERFORMED the desired behavior change is given by the trainer and/or other trainees.
5. DISCUSSION with trainees, when they compare the training objectives with the practicing they have just finished, allows them an opportunity to INTEGRATE their understanding of the change objective with their own practice experience.

The Good Feedback Communication Exercise used in the CSU marital enrichment workshop illustrates the behavior change model in practice. The exercise consists of two

*From M. Moore and J. Hinkle, The Student Couples' Seminar: A Leader's Manual. Fort Collins, CO: Colorado State University Counseling Center, 1970.

elements: constructing feedback statements to give to one's spouse and actually giving and receiving the feedback statements.

The workshop leader first EXPLAINS element one, the criteria for constructing good feedback statements: "Good feedback statements are (1) descriptive of feelings rather than evaluative of the other person; (2) specific rather than general; and (3) about behavior that can be changed, except when giving complimentary feedback." Actual examples of good feedback statements accompany the explanation explicitly DEMONSTRATING its meaning, i.e., "I feel angry toward you when you don't pick up your clothes in the morning." The trainees are then asked to construct from short descriptions they have previously written about their partners four feedback statements: two complimentary ones and two negative, angry ones.

Element two, the three-step process by which the good feedback statements are given and received, is then EXPLAINED:

Step 1: Partner 1 addresses feedback statement to Partner 2.

Step 2: Partner 2 says, "What I hear you saying to me is . . .," and repeats the statement until Partner 1 indicates that it has been received accurately.

Step 3: Partner 2 then responds to Partner 1's feedback statement with "Inside I feel . . . about your statement."

The three-step process is DEMONSTRATED by an audio-tape of a married couple actually giving and receiving positive and negative feedback statements. The demonstration tape offers a model of the communication exercise being performed as explained.

In the next step, trainees PRACTICE giving and sending their own feedback statements as demonstrated, but with partners other than their spouses. In this case, trainees follow the model with less anxiety and better performance by ROLE PLAYING with a practice partner. PERFORMANCE FEEDBACK is given by other couples and the workshop leader. Subsequently, trainees ACTUALLY PRACTICE the good feedback exercise with their own spouses. As in the role-playing situation, PERFORMANCE FEEDBACK is given by the observing couple and the trainer. Finally, all trainees share with each other their affective and cognitive reactions to all the previous steps in the training process. This DISCUSSION facilitates the trainees' INTEGRATION of the training objectives with their own learning experience.

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TECHNICAL APPENDIX G

EXAMPLE TRAINING FORMAT FOR ECOSYSTEM IMPLEMENTERS

This example format is designed for training ecosystem implementers in a series of four two-hour sessions.

Session One--Overview of the Project (two hours)

A. Brief description of the ecosystem model.
B. Description of the project and its goals.
C. Implementer's schedule and job description.
D. Role of team captains.

Session Two--Assessment Tasks (two hours)

A. Trainees answer a sampling of items from all formats used in the phase one assessment instrument.
B. Trainees discuss their reactions to its approach.
C. Trainees are taught directions for administration of phase one instrument.
D. Trainees are taught how to check and turn in the assessment instrument for computer scoring.
E. Trainees fill out an ER form for items answered above.
F. Trainees discuss their reactions to ER approach.
G. Trainees are taught directions for administration of ER instrument.

Session Three--ER Analysis (two hours)

A. Using ER responses from the pilot test, trainers demonstrate that portion of the ER analysis for which trainees will be responsible.
B. Using another group of ER responses from the pilot test, trainees practice the analysis procedures.

Session Four--Organizational Tasks (two hours)

A. Contacting and scheduling respondents.
B. Contacting and working with environment's personnel.
C. Arranging follow-up testing sessions.
D. Assigning teams of implementers to captains.

While not a formal training session, a natural follow up to this training format would be a subsequent meeting to briefly review key training material, introduce team captains, and formulate implementer teams.

Review and Meeting with Team Captains

A. Review and answer any questions trainees have about testing and analysis procedures.
B. Briefly review role of captains.
C. Set times, dates, and purposes of future meetings with team captains.
D. Captains set up contact procedures to be used among the group.

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TECHNICAL APPENDIX H

SAMPLE FORMAT FOR ONE-DAY WORKSHOP IN ENVIRONMENTAL DESIGN

Morning Session

1. Present overview of the ecosystem model.
2. Report on the campus project.
3. Briefly outline the workshop's goals and format.
4. Group the participants according to the design project on which they will be working. A planning team member serves as leader for each design project group.
5. Each leader hands out and reviews the data analysis pertinent to his/her design project group.
   a. Members of the design group briefly discuss their reactions to the data analysis including the reasons for the data outcomes and their suggestions in response to these outcomes.
   b. Design group elects a recorder or the planning team provides a recorder for each design group.
   c. Using a brainstorm or similar process, the design group identifies what courses of action could be taken in response to suggestions given in the data analysis.
   d. Design group reviews its list of ideas, and, using field force analysis or a similar process, selects the one it can plan and implement.

Afternoon Session

1. Workshop leader reports on what each design group has selected as its course of action in response to the data analyses.
2. Design groups reconvene to make plans for how its course of action will be implemented, including policy and/or program development, needed resources and staff, and a schedule of any subsequent design group meetings it will need to implement its plans.
3. In plenary session, each group reports the plans and implementation schedules for its design project.

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